31st July - 2 August 2017

12th International Conference on Performance Measurement in Libraries
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20/20 Vision for Academic and Public Library Data

Ian Reid and Carl Thompson
Counting Opinions (SQUIRE) Ltd.

In the opening chapter of *Library Assessment in Higher Education* (Second Edition), Joe Matthews (2015a) posits that there is a “tsunami of change bearing down on academic libraries” and he raises the stakes in referencing the opinion piece “Academic Library Autopsy Report, 2050” by Brian Sullivan, which suggests that academic libraries face extinction unless they embrace radical change.

Similar forecasts have been given for public libraries, suggesting that they too will fade away; the result of online retailers offering ebooks and downloadable media for immediate possession on one’s own device and compounded by the traditional perception of public libraries primarily existing to lend books (Bodnic, 2012). As Linda Saferite, former CEO of the Tulsa City-County Library, observed in her forward to *Lean Library Management: Eleven Strategies for Reducing Costs and Improving Customer Services*, “As a society we have become universally impatient…[and]...we have come to expect ‘instant gratification’ from service providers” (Huber, 2011, ix). As observed by Lukanic (2014) and Allen (2016), libraries continue to evolve and offer a broad array of services, technology and special-use spaces for their existing and new users.

While libraries reposition and diversify their service offerings, challenge remains for library administrators including how to best allocate library resources to meet the needs of its users while simultaneously demonstrating value alignment with the priorities of the institution and all stakeholders. These decisions are often being made in an increasingly hostile environment where “the toughest for-profit competition is aggressively pursuing your customers” (Huber 2011, p.10). Huber (2011) argues that libraries are a merger of purchasing, manufacturing, inventory control, distribution, warehousing and retail, and that by recognizing their operations are complex businesses, library management and staff can and must challenge this threat and aggressively improve service while reducing cost.

It is with this concept in mind, libraries as businesses, that this paper proceeds.

The premise of this paper includes these ideas ...

- library usage data showing clear trends
- demonstrating relevance requires tracking and monitoring metrics on all aspects of services
- continuous data capture and evaluation is viable and can be ingrained into the regular process of service delivery
- ready access to performance measures and, ideally, comparative data should be a priority
- most institutions are at the stage of dealing with challenges (perceived and real) in the definition, capture, combining and repurposing of measures but this should not deter them from taking action now
- there is no one universal solution nor should libraries expect one … so use of various tools and approaches is likely necessary in the pursuit of comprehensive library evaluation and assessment
- national, international and other cohort surveys are invaluable for benchmarking and insightful discussion, but these surveys need to improve to reflect new realities and to better support sectoral analysis, recommendations and sharing of best practices

The following figures (1 & 2) depict library service trends in the Academic and Public Library sectors respectively. The charts are based on data from the continuous responding libraries; those that responded to each of the questions in every year depicted in the graphic. Figure 1, shows Association of College and Research Library (ACRL) data for 307 continuous responding academic libraries. Figure 2, shows Public Library Data Service (PLDS) data for 429 continuous responding public libraries.
Figures 1 and 2 depict the percentage change for each measure commencing from the first year (start period) and indicates, relative to the start period and between each interval: growth, no change, or decline. Change is relative to each measure from the start period, and since this change is expressed as a percentage, the difference in magnitude of the percentage change enables comparison and depicts where libraries are growing, unchanged, or declining. For example, in Figure 1, mean library expenditure per enrolled student shows a decline in this spending ratio between FY2009-10, and since FY2010 the ratio has steadily increased to almost the same level in FY2014 (-0.1%) as FY2009. Notably in FY2010 there was a higher level of undergraduate enrollment reported by the continuous responding ACRL libraries and this is corroborated by the report, *The Condition of Education - Participation in Education - Postsecondary - Undergraduate Enrollment - Indicator May* (2017).

**Association of Colleges and Research Libraries (ACRL): Academic Library Service Trends**

![Graph](image)

*Figure 1: ACRL Percentage Change in Mean Service Levels per Enrolled Student (FTE), FY2009-2004 - Continuous Responding Libraries (N=307)*

Between 2011 and 2014 the ACRL survey data in figure 1 for the continuous responding academic libraries (N=307) shows increases in mean Titles (39.14%), Volumes (30.26) and Instructional Sessions (3.73%) per enrolled student. Mean eBooks held per enrolled student (not depicted in the figure), a sub-component of volumes held per enrolled student, almost doubled (92.62%). Mean usage counts per enrolled student: ILL Borrowed (-13.94%); Initial Circulation (-15.83); and, Reference Transactions (-18.87) all show continuing significant decreases.

This pattern is similar for public libraries. Figure 2 shows the PLDS survey data for the continuous responding public libraries (N=429). Between 2014 and 2016 mean Holdings (65.2%) and Programs (7.1%) per capita have increased.

The significant increase in Holdings was largely due to a change in counting practice in FY2015 allowing the inclusion of consortia agreements for eBooks among those libraries serving populations less than one hundred thousand. In the last five years, holdings per capita have been relatively unchanged for libraries serving 100,000-499,999 (0.6%) and 500,000 or more (-0.2%). Mean usage counts per capita: Visits(-4.8); Circulation(-6.0); Reference Transactions(-8.2%); In-Library Use(-4.7%)
These service level trends are similar for both academic and public libraries; traditional services are in decline, and instructional and programming (learning-based) services are increasing.

Figures 3 and 4 show similar trends per enrolled student (academic) and per capita (public) for group instructional sessions and participation (academic) and programs and attendance (public) compared to circulation and expenditures. There is a clear increase among both populations participating in group instructional sessions (academic) and program attendance (public) and the number of sessions offered, while the circulation of items, once considered the primary service of the library, is now in continuous decline.

**ACRL SYR Trend: Mean Group Session Participation compared to Initial Circulation**
This trend suggests a need for academic and public libraries to better measure these aspects of service. This implies the need for new measures of efficiency and effectiveness in response to these changes. Regrettably there is insufficient data of type, scope and scale among the national data sets (e.g., ACRL and PLDS) that could enable further analysis, benchmarking and/or discovery of best practices with respect to these above findings. Ideally, access to itemized expenditures and resource allocations related to the provision of all services would provide a consistent framework for identifying efficient deployment. Huber (2011), for example, uses a transaction cost analysis methodology to determine a total cost of delivery and the cost of each component in the delivery service chain, as follows:

1. List all daily activities performed and completed by each library associate
2. Estimate the time spent in the day performing each activity
3. Link these activities to the delivery service chain for the related library service
4. Apply the staff’s fully loaded hourly rates (salaries plus benefits)
5. Add an overhead rate allocated for staff that includes expenditures on furniture, equipment, maintenance, depreciation, and other expenses to the labor rates
6. Add the opportunity costs of all allocated non-staff resources (e.g., space per Sqft, furniture, equipment) to get a more complete costing.

As part of the measurement and evaluation related to academic group instruction and public library programs, for example, this methodology would give effective insight into many of the costs associated with the development and delivery of instructional sessions and programs and better enable the library to understand the resourcing requirements of existing and proposed new programs.

There is an ongoing shift in the library service landscape combined with new emphasis on the importance of outcomes and impacts in library measurement as necessary to meet stakeholders who often demand it (Oakleaf, 2010; Hernon et al., 2014; Dugan et al., 2009). Matthews (2015b) explains that “Outcome measures or indicators indicate how the library’s resources
and/or services have prompted a change in the life of the customer. In other words, the focus changes to that of the customer...”.

This is helpful to understand what should be measured and who benefits from the service, but assessment and evaluation require a more holistic approach which encompasses internal/external stakeholders and beneficiaries, as well as the resources, capabilities, services, and value of the library. As a result, a mix of input, process, output, feedback, and outcome measures are needed to quantify and qualify opportunities for improvement and ultimately determine the success or failure of any effort, change or new service offering.

Evaluation, therefore, begins with a strategic plan. Matthews (2005) describes the strategic plan as:

“[consisting] of an organization’s mission statement and strategic vision, near-term and long-term performance targets, and the strategies that will be employed to achieve the vision’s goals and objectives. In general terms, strategic planning should be a continuous and systematic process in which the members of an organization involved in planning make decisions about it future, ensure procedures and operational policies are designed to achieve the future, and determine how success is to be measured.”

The strategic planning process is a means to coalesce and understand the missions and strategic plans of the broader institution and/or partners and as Matthews (2005) puts it:

“...strategic planning can be a significant opportunity to unify staff members, stakeholders, and customers through a common understanding of where the library is going, how everyone can work to achieve a common purpose, and how the library will measure and report its progress and levels of success.”

Figure 5, Stakeholders’ Mission and the Academic or Public Library, based on Dugan et al., 2009, p. 56, offers a generic version illustrating the relationship and importance of the institutions or partners (stakeholders) mission and acknowledges the influence in planning for provision of service, the metrics required for accountability, and the reporting of findings concerning the libraries contribution to the stakeholders.

The model is in itself a feedback loop. From knowing and understanding the mission, the relationships and requirements of the institution/partner, the library is better able to identify or design and deliver services best suited to its constituency and simultaneously fulfill the contributive requirements of the broader institution and its partners (Dugan et al., 2009).
The assessment and evaluation framework in Figure 5 recognizes or positions the library as an organizational unit contributing in some way or part to the overall mission of the institution or partner at the top level. To support organizational accountability, the library applies an assessment (measurement) and evaluation process, as outlined by Dugan et al. (2009) to:

1. Determine internal status and performance
2. Report contributions to the institution/partner
3. Enable feedback for decision making and improvement of operations, services and programs

This model naturally flows into another strategic planning tool, Figure 6, used by the University of West Florida, Libraries called the Strategic Plan Compass (Hernon et al., 2014). At its core (center), the strategic plan compass relates and aligns the library with the institution or its partners’ mission. The outermost rings describe the library administrative behaviours, and in between are the elements of collective ambition, including the targets and milestones that will measure progress in each. While not an exhaustive account or detail of the array of measure needed by the organization, the strategic plan compass enables staff members and administrators to focus on measurable concepts to better identify the parts of a service delivery chain or other process. The compass is invaluable in regular and ongoing assessment and evaluation processes and identifies “continuous improvement” among the Library administrative behaviours. As discussions ensue, the compass and the metrics linked therein helps to focus conversations and enable the organization to move forward (Hernon et al., 2014).

![Figure 6: Strategic Plan Compass (Hernon et al., 2014, p.6)](image)

It is not surprising to find “demonstrate value” included among the Library administrative behaviours of the compass (Figure 6). As previously mentioned, institutions, partners and stakeholders want Libraries to demonstrate value from the services they provide. Orr (1973) defined the concept of value as “goodness” based on two basic concepts:

1. How good is the service? - Quality
2. How much good does it do? - Value
The model Orr conceived, Figure 7, shows how resources are transformed by the library through its organizational capability to offer services that invite demand. Use of the service is an opportunity to understand the perceived level of service quality and user satisfaction and likelihood they will promote and reuse the service. Incidents of perceived low quality and dissatisfaction combined with immediate feedback enables the library to prioritize and demonstrate responsiveness that can turn a potential problem or incident into an opportunity. Users typically have a level of expectation they will receive some benefit.

Matthews (2015b) adapted the Orr model showing this process as comprised of 5 components and describing these parts in general terms relative to the measures associated with each.

The following Table 1, Mix of Measures, expands on each of these components including a feedback component in the mix to monitor and understand satisfaction and perceptions of service quality and the impact of changes in aspects of services on users. Customer (user) feedback is an important component of the assessment and evaluation process. Collecting customer feedback specific to services used can yield very useful information for the library including how use/participation enabled them to change in some way (Hernon et al., 2014). With some forethought, data capture tools and processes can be deployed for continuous feedback management with measures appropriately attributed to aspects of service and user context. While immediate outcomes are not irrefutable evidence of impact, the prospect of extending the conversation to capture mid-term or long-term outcomes represents a viable perspective on collective impact measurement.
The following expanded logic model, Figure 9, shows the relationship between stakeholder priorities and traditional measures (input, process and output) with infrastructure and administrative services that support the development and delivery of services. Ongoing feedback management is an important component enabling continuous assessment and evaluation of the service from the customer perspective. As users interact with library staff/resources/facilities/equipment, and use services such as participating in instructional sessions and programs, there is an opportunity to solicit feedback. These touch points represent opportunities to capture and understanding user perceptions including their immediate perceived outcomes. Via a simple follow-up question, there is an opportunity for subsequent follow-up to understand longer term changes in status, condition, behaviour and attainment of goals … to use this to help shed light on collective impact that highlights the value and relevance of the library.

**Mix of Measure**

**Input Metrics**
- Measures of financial, human, capital resources

**Process Metrics**
- Measures of steps, cost, time to provide service

**Output Metrics**
- Measures of usage, transactions, expenditures, cost per unit

**Customer Satisfaction and/or Service Quality Metrics**
- Measures of user perceptions relative to the aspects the service experience

**Impact and Outcome Metrics**
- Measures of changes in ...
  - Behavior
  - Skills
- Measures of cumulative, longer term outcomes
  - Cost/Benefit
  - Return on Investment

*Table 1, Mix of Measures, Silk, K. & Reid, I., 2015. DIY Library Metrics. Computers in Libraries.*

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**Figure 9: Expanded Logic Model**

**Stakeholders**

<table>
<thead>
<tr>
<th>Input</th>
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<td>Promote</td>
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<tr>
<td>Acquire</td>
<td>Design</td>
<td>Deliver</td>
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<tr>
<td>/ / /</td>
<td>Create</td>
<td>Support</td>
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</table>

**Users/Participants**

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<th>Impact</th>
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<tr>
<td>Intermediate</td>
<td>Cohort</td>
</tr>
<tr>
<td>Long term</td>
<td>Societal</td>
</tr>
</tbody>
</table>

**Support/Infrastructure**

**Community**
Concluding Thoughts

As libraries transform aspects of service delivery it is incumbent on libraries to communicate these changes in services and how users are using them.

Libraries can more easily demonstrate their management competence by incorporating usage, feedback and outcome measures in their reporting of the libraries contribution to value. This begins with a clear strategy to attain such measures.

Libraries are best positioned to explain their role relative to institutional priorities and, in some instances, inform the approach to attainment of efficiency and effectiveness measures that include user outcomes and institutional impacts.
References


A Green Approach to Reducing Library Storage Costs

Author: Boyd Rodger (Bodleian Libraries, University of Oxford)

Introduction

All Librarians know that storing books and archive material is expensive. Apart from the costs associated with the shelving, the space maintenance, and lighting, the books require an environment that best preserves them. In Britain the standards of collections preservation are set by BSI PD 5454:2012. Setting and maintaining the parameters of temperature and relative humidity is critical for document preservation and modern library storage depositories are designed to achieve this. But at what cost?

The Bodleian Libraries opened a new high-density storage depository in the form of a warehouse in 2010. It is similar to the warehouses at Harvard, Princeton and Yale universities. Maintaining the environment was expensive and an alternative was sought for the energy intense model of conserving materials. This paper outlines how a Library manager collaborated with colleagues from other departments in the University to improve environment management of a new library storage warehouse with interesting results.

Design, methodology, and approach

The Bodleian Libraries Book Storage Facility was designed to provide a sophisticated environmental control system. Temperature was set at 18c +/- 1c and Relative Humidity at 50% +/- 5%. These settings were achieved but I was aware at an early stage of the new building how much energy was being used to maintain the environment.

The first indication of high energy usage was derived from the monthly utility bills. The costs were very high as evidenced in the first month’s electricity bill which was for £18k. This led me to analyse further and I became aware of the amount of energy used exceeded 1 million kWhs of electricity in the first full operating year of 2011. That equated to 929 metric tons of carbon. I started asking lots of questions of the contractors who built the facility. They assured me the environmental control system was built to the University’s specifications and was tested before the building was handed over. My critical questioning then turned to my colleagues in Estates Services. Eventually, I found an Associate Director in Estates Services who observed the environmental control system and felt it could work more efficiently. It was proposed that a mechanical engineer together with environment management specialists work with me to find ways of making the system work more efficiently.

It was suggested by my line manager that the Library should lead on this initiative. Normally library managers depend on their colleagues in Estates Services to lead on all matters that involves specialist engineers. On this occasion, I co-led the group of specialist engineers.

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1 Guide for the Storage and Exhibition of Archival Materials.
2 Kilo watt hours.
3 This is the equivalent of driving 2,226499 miles in an average car or the energy consumption of 98.1 homes. See https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator
4 Estates Services is a department in the University that maintains buildings and the associated machinery.
When the Working Group was formed in late 2011 and an analysis of the existing system completed, it was agreed that improvements to the environment management system would be conducted through series of incremental experiments with lessons being learnt from the experience of the experiments. In terms of methodology, the improvement method used was similar action research. Each experiment was conducted in an agreed sequence with the option of a senior library manager (myself) being able to cancel any experiment if there was any concern about the sustainability of the temperature or the humidity levels. Consultation occurred before any experiment with conservation colleagues who suggested their own independent data gathering methods. This data analysis also included testing for mould.

Between November 2011 and 2016 the improvement experiments were implemented through the following:

1. Limiting the speed of the fans that blows the humidified air into the storage chambers. This produced the single largest reduction in energy usage.
2. The fans overrun was limited. This initiative introduced a limit to the duration the fans needed to operate.
3. 152 solar panels were commissioned for the storage facility. This provided 15% of electricity during the summer and 4% in the winter months.
4. The temperature setting was reduced from 18c to 17.5c +/- 1c. Relative humidity was increased from 50% to 52% +/- 5%.
5. Deadlands were introduced. This is the amount of drift permitted in the storage environment before the humidifiers and chillers activate in response.
6. The deadbands were widened further and the chillers were programmed to be demand driven.
7. The set temperature of the water in the chillers was increased from 3c to 6c.

The chart above demonstrates the cumulative impact of the improvement initiatives on the amount of electricity demanded by the storage facility. There is spike in energy demand in the summer of...
2013. This was caused by a faulty humidifier and emphasised to the Working Group the importance of regular maintenance checks of the environment management system.

Initially these changes were driven by the aim to make the system work more efficiently and to save money. Another key aim was added and that was to reduce carbon emissions. This connected the project with the wider carbon reduction programme in the University. In doing so, it made possible the installation of solar panels which was paid for by the Carbon Reduction Programme Team.

This led to further research on which parts of the building used the most of amount of electricity.

### ION Meter Readings - BSF June 2016

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<td>DB14</td>
<td>100,969.00</td>
<td>102,522.00</td>
<td>1,553.00</td>
</tr>
<tr>
<td></td>
<td>DB15</td>
<td>61,954.00</td>
<td>63,037.00</td>
<td>1,083.00</td>
</tr>
<tr>
<td>sub-total</td>
<td></td>
<td></td>
<td>8,339.00</td>
<td>11.2%</td>
</tr>
<tr>
<td>Essential</td>
<td>DB33</td>
<td>23,256.00</td>
<td>23,617.00</td>
<td>361.00</td>
</tr>
<tr>
<td>Chargers</td>
<td>DB22</td>
<td>42,595.00</td>
<td>43,202.00</td>
<td>607.00</td>
</tr>
<tr>
<td>sub-total</td>
<td></td>
<td></td>
<td>968.00</td>
<td>1.3%</td>
</tr>
<tr>
<td>total</td>
<td></td>
<td></td>
<td>68,780.00</td>
<td>92.7%</td>
</tr>
<tr>
<td>Solar PV</td>
<td>DB002</td>
<td>116,987.00</td>
<td>122,433.00</td>
<td>5,446.00</td>
</tr>
<tr>
<td>BSF electricity demand (Network + Solar PV) =</td>
<td>74,226.00</td>
<td>100.0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As can be seen in the above chart, 80.1% of the electricity is used by the chillers and humidifiers. This data was used to inform a further experiment where the chillers and humidifiers were ‘setback’ from 16:30 to 19:00 hours each day. This time is significant since it is the most expensive charging period for electricity usage and the unit costs is 872% more expensive than the previous period. This experiment proved successful.

In the table below these criteria were recorded in the experiment to see if it was viable to ‘setback’ the Building Management System.

<table>
<thead>
<tr>
<th>What will be monitored?</th>
<th>By whom?</th>
<th>Data source</th>
<th>Unit of measure</th>
<th>Success criteria</th>
<th>Agreed by</th>
</tr>
</thead>
<tbody>
<tr>
<td>The amount of electricity used compared to two benchmark days (28th April &amp; 3rd May 2016).</td>
<td>Jonathan Walford</td>
<td>ION meter readings</td>
<td>Kilowatt Hours</td>
<td>1. The BSF will use less electricity during the 2.5 hours setback period. 2. The BSF will use less electricity throughout the whole day.</td>
<td>Jonathan Walford</td>
</tr>
<tr>
<td>The Air Handling Units and Chillers will automatically restart when the BMS setback ends.</td>
<td>Martyn Spray</td>
<td>Observation of BMS</td>
<td>Air Handling Units restart Chillers restart</td>
<td>1. All AHUs and Chillers restart on demand. 2. Fans, pumps and supporting services shutdown during the BMS setback period.</td>
<td>Mark Foxton</td>
</tr>
<tr>
<td>The environment in the warehouse in each of the 4 Chambers.</td>
<td>Alexandra Walker</td>
<td>Independent sensors</td>
<td>Temperature c° Relative Humidity %</td>
<td>1. Ideal variance if within 9.6% of RH and 1.4% of temperature (Dead Band control target). 2. Failure if the variance exceeds 14.3% of RH and/or 5.7% of temperature (Red Alarm settings). [Fail parameters are: exceeding 40%-60% RH and 17.5°C +/- 1°C]</td>
<td>Alexandra Walker Boyd Rodger</td>
</tr>
<tr>
<td>The impact of reduced energy demand on the carbon footprint.</td>
<td>Boyd Rodger</td>
<td>ION meter readings</td>
<td>Kilowatt Hours tCO₂</td>
<td>1. Reduction in Kilowatt Hours and tCO₂. 2. The reductions are sustainable.</td>
<td>Lucinda Lay</td>
</tr>
<tr>
<td>The impact of the reduced energy demand on the BSF utilities costs compared to two benchmark utilities bills.</td>
<td>Boyd Rodger</td>
<td>Red Band rate Day usage rate</td>
<td>£0.00 £0.00</td>
<td>Reduction in Red Band and Day rates usage.</td>
<td>Boyd Rodger</td>
</tr>
<tr>
<td>Record the outside temperature, humidity, and wind speed for modelling research purposes.</td>
<td>Boyd Rodger</td>
<td>BMS</td>
<td>Temperature c° Relative Humidity % Wind speed mph Wind direction</td>
<td>Data obtained, recorded, and forwarded to the Oxford Martin Programme on Integrating Renewable Energy.</td>
<td>Prof Malcom McCulloch</td>
</tr>
</tbody>
</table>

The table also highlights a key lesson emerging from the experience of reducing carbon usage: the need to agree in advance the method of monitoring, who is doing what, the data that will be used, the success criteria, and who agreed to the various aspects of the experiment. With many stakeholders engaged in the improvement project, each with their own idea of success, it was useful exercise to agree the following before any changes were implemented:

- What will be monitored;
- By whom;
- The data source;
- The relevant unit of measure;
- Success criteria;
- Who agreed to each of the criteria.

5 ‘Setback’ means the Building Management System software is programmed not to send instructions to the chillers and humidifiers during a specified time of day. There was a safety feature built into the software which allowed the Building Management System to override the setback instruction if the temperature of relative humidity exceeded certain parameters.
Results

The experiments resulted in significantly reducing the amount of energy required to maintain the temperature and relative humidity for the preservation of the books. It produced the following savings:

1. A saving of £90k per annum in utilities costs;
2. A reduction of 412 tonnes of carbon;
3. A reduction of 283k Kilowatt Hours in electricity per annum.

In UK there is a monthly charge in electricity bills to pay for the use of the infrastructure for the delivery of electricity as well as the electricity used. A standard monthly charge is included in the electricity bill, which in our case amounted to £2,032 per month or £24,385 per annum (including VAT).

Due to the experiment where the humidifiers and chillers were not used during the peak charging rates in 2016 to 2017, the Library received a significant rebate of £21.6k (entitled ‘Triad Reconciliation’). Basically, three sample days are chosen by the electricity supplier during the winter months to calculate the rebate a customer should receive based on how much electricity they consumed at specified times on those days. Since it was known that the chillers and humidifiers consume 80% of the electricity at the storage facility, switching them off at peak usage times increased the rebate.

<table>
<thead>
<tr>
<th>Financial Years</th>
<th>Triad Reconciliation</th>
<th>difference from previous year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012/13</td>
<td>£10,980.95</td>
<td></td>
</tr>
<tr>
<td>2013/14</td>
<td>£12,211.02</td>
<td>£1,230.07</td>
</tr>
<tr>
<td>2014/15</td>
<td>£15,256.45</td>
<td>£3,045.43</td>
</tr>
<tr>
<td>2015/16</td>
<td>£18,214.37</td>
<td>£2,957.92</td>
</tr>
<tr>
<td>2016/17</td>
<td>£21,601.76</td>
<td>£3,387.39</td>
</tr>
</tbody>
</table>

Research and practical limitations or implications

Library, conservation, and facilities management professionals tend to focus on the results of environment management in large library depositories (i.e. the consistency of temperature and humidity levels) rather than outcomes (i.e. how much energy is required to achieve that consistent temperature and humidity). Working towards a green and cost-effective alternative to conventional depository environment management, therefore, requires a radically different use of measurement methods.

Achieving green outcomes for library operations and collections preservation requires a collaborative approach with other relevant departments. These include collections care conservators, building environment control engineers, maintenance engineers, energy analysts, alternative energy specialists, and academics.

Saving money can be used to drive many green initiatives. However, this approach will reach its limitations when the savings are produced – it will not tend to challenge the amount of energy demand.
a building requires. A green approach will take experimentation further and remodel the energy requirements of a library building. This can make it possible for library storage facilities to be powered entirely by alternative energy. Imagine your library with the moto “Powered by the Sun”.

Conclusions

The use of measurement methods in the preservation care of library material requires a more sophisticated approach than simply measuring temperature and humidity. Collating and analysing data on the environment management will inform which parts of system are using the most energy and could be subjected to experimentation to make them operate efficiently.

It is also important to continuously ask probing questions about how the environment management system works even though the questioner is not a professional engineer.
After the survey

An integrated strategic approach to action

Jackie Belanger, Maggie Faber, Steve Hiller

University of Washington

Introduction

Surveys are a staple of library performance measurement and user needs assessment. They have been widely used by libraries to acquire user input, evaluate library services, and understand user needs and priorities, and there is a substantial body of literature related to the design, development, implementation and analysis of survey results. However, an ongoing concern lies in the challenge of moving from analysis and communication of results to actions that lead to improvements for users. While a substantial amount of data is collected through surveys, the application of survey results is often mixed, especially in terms of advancing larger library and institutional strategic priorities. This paper provides an overview of the issues involved in turning results into action. Using a case study from the University of Washington Libraries 2016 Triennial Survey, the paper illustrates methods that can provide a more integrated and strategic approach to using quantitative and qualitative survey data to improve library services. These approaches include (1) an emphasis on greater stakeholder involvement in the survey design process; (2) communicating results more effectively to library staff; (3) taking a more rapid and agile approach to follow-up assessments through methods such as design thinking; (4) aligning survey development and results with strategic planning; and (5) using survey results to underpin organizational change processes. In discussing these methods, the authors aim to provide attendees with concrete strategies they can employ in their own efforts to use survey data for library improvement.

This paper reviews issues and common barriers involved in moving from survey results to action and highlights the importance of key steps in the survey design phase that are critical to the effective use of results. These include clearly articulating survey goals and engaging both staff and user input during survey design in order to develop a survey that elicits actionable results. While the case study focuses on the example of a large U.S. research library, the authors believe that the approaches outlined in this paper can be used across a range of libraries.

Background & Context

The University of Washington (UW) is a large, comprehensive research university with a main campus located in Seattle, Washington and two smaller branch campuses nearby. The 2016-17 enrolment at the three campuses consisted of 40,000 undergraduate and 16,000 postgraduate students. With more than 4,500 teaching and research faculty, the UW is an international research powerhouse that consistently ranks in the top 25 global universities. The UW Libraries supports teaching, learning, research and service through its print and online collections, robust online infrastructure, innovative services, and award-winning facilities. The UW Libraries has a long-established and robust assessment program that has delivered critical information about user needs and priorities, library use, importance, impact, and satisfaction for the past twenty-five years and has helped align library programs with user needs. While multiple qualitative and quantitative assessment methods are employed to answer various questions about users and services, the Libraries Triennial Survey has served as a cornerstone of the assessment program since its inception in 1992 [1]. It is the longest running large-scale user survey in a North American academic library.

The assessment program ran the eighth iteration of the Triennial Survey in 2016. As a locally-designed and implemented survey, changes are made in each iteration in order to gather the most relevant and timely information for our library. The questions focus on user needs and experiences, especially as they relate to library and institutional mission and goals. Separate surveys are conducted for undergraduate students, graduate and professional students, and faculty. The authors have extensive survey experience and have employed a variety of methods to make use of survey results, including several new ones for the 2016 survey.
The 2016 Triennial Survey invitations were sent to a sample of 5000 UW Seattle undergraduate students during Winter Quarter 2016 with 1,120 completed surveys returned (22% response rate). During Spring Quarter all faculty and graduate students were invited to take the survey with response rates of 34% for faculty and 23% for graduate students.

It should be noted that significant library investments in the assessment program provided additional support and expertise that enabled new and different methods to be used in the 2016 survey. Previously, survey design was conducted by a committee of 8-12 members and analysis and reports were generated by one or two people. Compared to 2013 survey, in 2016 staffing was increased from 1.5 to 2 librarians and also included a new half-time data analyst (which became a full-time data and visualization librarian position after the survey was completed), and the use of a part-time research scientist with survey and data management expertise for implementation and initial analysis. The purchase of Qualtrics survey software and Tableau provided far greater flexibility and capabilities in survey design and implementation as well as data visualization. These enhancements made for a richer survey design process and produced more easily understood and actionable results.

Discussion: Moving from survey results to action

In their classic 1992 article “The Emperor’s New Clothes? Problems of the User Survey as a Planning Tool in Academic Libraries,” Schlichter and Pemberton noted three main problems in library user surveys: “(1) difficulties in the design of user studies; (2) difficulties in translating the results of such studies into concrete management decisions; and (3) the lack of acceptance of survey research as a valid tool by many librarians” (p. 258). Studies published in 2004 and 2008 by one of the authors found that, in general, many libraries still experienced difficulty in applying usage and survey data to evidence-based decision making (Hiller & Self, 2004; Hiller et al., 2008). Much has changed in the past ten years as user surveys have become an integral part of burgeoning library assessment programs and as libraries have developed better internal research and analytical skills. The use of externally-offered surveys such as LibQUAL+ and Ithaka S&R have provided more comprehensive training and checklists for moving results to action. Still, a recent article noted the need for “careful attention to planning for how the data from the survey will be communicated and used in decision-making is warranted...to gain the maximum benefit from the investment” (Hinchliffe, 2015, p. 256).

There are five keys approaches that underpinned our efforts to move more quickly and seamlessly from survey results to actions. These approaches include:

- Stakeholder involvement in survey design;
- Targeted and multifaceted communication of survey results to Libraries staff;
- Rapid follow-up assessments;
- Alignment with strategic planning; and
- Organizational change and institutional alignment.

Each of these areas are discussed in more detail below.

Stakeholder involvement in survey design

The design of the 2016 Triennial Survey involved a shift in the focus of conversations with Libraries staff during the survey development process. While survey development had always involved a consultation period with Libraries staff, discussions occasionally became centered on the survey itself and whether various groups would see their concerns reflected. In 2016, the authors took a slightly different approach by asking broader questions about what staff wanted to know about Libraries users. Removing the constraint of focusing on the survey instrument itself allowed staff to generate a range of questions about users. These questions were then brought to the appointed survey development committee, who worked with the authors to determine which questions might be best suited to a large-scale survey. The questions that were not appropriate for survey methodology were then used to inform future assessment plans. This enabled the authors to gather creative ideas for the survey that were genuinely rooted in staff needs, while also communicating to staff that any questions that were not addressed on the Triennial Survey could still be part of other projects that would use methods like interviews or focus groups.
The authors took an intentional and targeted approach to these stakeholder conversations, which supported later efforts to communicate results back to Libraries staff. The Assessment Librarian held a series of meetings with key departments and committees during survey development to explain the process and gather input about what these groups wished to know about library users. These groups were selected based on their involvement in key Libraries strategic directions and initiatives, and included: Reference and Research Services, Collections, Information Technology, as well as libraries across all three campuses. Beyond departments and campuses, groups leading work in strategic areas such as teaching & learning, digital scholarship, scholarly communication, data services, and undergraduate student success were also consulted. Additional information about aligning the survey with strategic priority areas is discussed in a later section.

As a result of this revised process, some questions were removed from the survey that had not led to actionable results in prior years. There were also new questions on the survey that provided more concrete and actionable data for staff (including questions on electronic books, user preferences for various search tools, and libraries support for teaching and learning). Taking this approach also enabled the Assessment Librarian to frame this work as an ongoing, inclusive conversation about assessment needs across the UW Libraries system. Once survey results were available, the authors were able to return to all these key groups to continue the conversations started during the survey design process.

**Targeted and multifaceted communication of survey results to Libraries staff**

The authors were later able to leverage these strong working relationships with stakeholder groups to guide their approach to communicating results. One key finding from this approach was the importance of communicating results in a variety of formats for different Libraries audiences. These formats included topic-specific reports, an overview report comparing trends over time, and interactive Tableau dashboards. In previous years, survey data had been made available to staff largely in the form of reports focused on campuses, major user groups (e.g., faculty) and academic program. These higher-level reports were valuable to staff, but the authors felt that there was a greater chance to help Libraries staff engage with and use the results if these high-level reports were supplemented with more specific analysis and communication strategies. In 2016, the authors created more customized topic-specific reports for key stakeholder groups (e.g., on scholarly communication, teaching & learning). The reports provided groups with a detailed understanding of the results that mattered most to them and engaged them in discussions about additional questions and ways they might act on the results, increasing the likelihood that staff would be willing to implement changes and suggestions they helped generate.

In addition, the Data Visualization & Analysis Librarian developed a suite of interactive Tableau dashboards that allowed staff to explore relevant results in greater detail and to compare patterns across groups. Fourteen dashboards were created: comments and data dashboards for graduate and undergraduate results at each of the three campuses (Seattle, Bothell, Tacoma) as well as the tri-campus faculty results. The dashboards enabled Libraries staff to interact with the data based on the intersection of specific groups (Master’s degree students in a particular College or School) or topics (electronic collections) and to explore ongoing or emerging questions in relation to quantitative and qualitative results. For example, those who were interested in selected undergraduate demographic groups, such as international and first-generation students, were able to use both data and comments dashboards to better understand the specific needs and patterns of library use for these groups. Liaison librarians were also able to explore results by specific departments in order to identify data and comments that were most directly relevant to their work.

In making both the qualitative and quantitative results more accessible via the dashboards, the authors found that staff were more empowered to act on these results within their own units or working areas. These various reporting models opened up new ways for units and departments to integrate the survey results into ongoing service review and follow-up assessment, which is discussed in more detail in the next section of the paper.
Figure 1. Faculty dashboards from the 2016 Triennial survey. The dashboard in the upper left shows the quantitative results, while the lower right shows qualitative comments. Both dashboards are interactive and can be filtered to show answers from a particular subset of users or answers on a particular topic or service.

Rapid follow-up assessments

Another key aspect of moving from survey result to action was taking a more nimble and strategic approach to following up on survey results using other assessment methods such as design thinking. Like many large-scale user surveys, the UW Libraries Triennial Survey sometimes yields results that are indicative of important user needs and patterns, but may not point directly to concrete actions for improvement. Using these high-level survey results to inform focused follow-up assessments enabled the authors to move more rapidly from survey results to actionable steps for service improvement. The authors worked closely with key Libraries stakeholders to identify selected areas from the survey results that warranted further investigation. When the authors returned to the stakeholder groups initially consulted during the survey design process, they specifically framed discussions of the results not just in terms of immediate actions that might be taken for improvement, but also in terms of questions raised by the data. Acknowledging from the start that survey results may generate more questions than answers—and the frustrations that this can initially cause as staff work with results—helped to reinforce the idea that the survey in general, and the step of analyzing and making sense of survey results more specifically, represented just one specific moment in an ongoing conversation about user needs and improvement. This, in turn, reduced the lead-time to generating ideas for follow-up assessments that would generate more specific actionable data.

One example of this approach centers on survey results from graduate students relating to support for citation management tools. On the 2013 and 2016 iterations of the Triennial Survey, graduate students were asked to select up to three choices for services and resources that would be helpful for their work. The question is designed to help the Libraries understand how existing services might be strengthened and where new services might be needed. Options on the 2016 survey included:
assistance with citation management (also on 2013 survey), consultation with their liaison librarian, support for data management, and assistance with publishing-related issues such as Open Access questions. Results from both the 2013 and 2016 surveys showed that the top category overall (62% of Seattle graduate students) was assistance with citation management. This was useful information, but the authors and Libraries staff felt that additional information was required: what kind of support was needed, for example? Was the existing citation management support service not fully meeting student needs, or were students not aware that the Libraries provided such support? In order to learn more, a small project team embarked on a project using a design thinking approach, which involved interviews with graduate students from selected departments to learn about their needs in greater depth [2]. To help close the loop with users and demonstrate the Libraries’ commitment to take action, survey data was also used to reach out to departments through recruitment emails and to frame the project in interviews with students. These interviews were followed up with user feedback on various prototypes for services. This project has resulted in a number of improvements, including a new event for graduate students and changes to the existing service model.

Rapid follow up assessments were critical to moving from survey results to action. There were two important components to this that enabled the authors and their colleagues to take a more agile and focused approach to specific service improvements: firstly, emphasizing in conversations with staff that survey results may be simply a starting point for follow-up assessments; and, secondly, using approaches such as design thinking that focus on the rapid and iterative development of services.

Alignment with strategic planning

A tighter integration of library assessments such as the Triennial Survey with the strategic plan (and planning process) was another important element in translating survey results into action. Triennial Survey questions were closely and visibly aligned with the UW Libraries 2014-17 strategic priorities in key areas such as scholarly communication, data management, resource discovery, research support, digital scholarship, and teaching and learning. Aligning 2016 survey questions with our strategic priorities facilitated the process of gathering information needed to move forward in these areas. This alignment was critical for generating increased buy-in from staff when they began to explore survey results and consider how to make improvements accordingly. For example, one of the key focus areas for the 2014-17 plan was on expanding and improving access to online resources. In support of this, a question was included on the survey asking faculty and graduate students about their preferences for electronic or print formats for different types of books (e.g., monographs, essay collections, conference proceedings, textbooks). This data, as well as numerous comments related to it, indicated strong interest in electronic books but highlighted significant barrier to adoption. Reading through the comments confirmed for Libraries Collections staff the issues relating to locked content that they had often been called upon to troubleshoot. As a result, collections staff decided to prioritize Digital Rights Management (DRM)-free subscriptions to reduce access limitations and other use restrictions on ebooks, and collections staff now give significant consideration to whether a resource is DRM-free as part of their ongoing strategic decision-making process.

Survey results also play an important part in evaluating the success of initiatives and in informing the development of strategic priorities and directions. 2016 survey results and follow-up discussions are now being used in the initial phase of creating the next iteration of the UW Libraries strategic plan. The close integration of the survey and the strategic plan means that survey questions can speak directly to core areas of focus and that strategic priorities are guided by user needs. This approach can help staff to see the relevance of survey data both in shaping priorities and in understanding if the library is successfully meeting its strategic goals.

Organizational change and institutional alignment

The UW Libraries also used survey results actively to ensure that Libraries staffing, services and resources are aligned with broader institutional priorities. The 2016 survey results have been especially valuable in helping to initiate and support organizational change. For example, survey results were used as part of a mixed-method approach for an organizational review for our Research and Learning Services unit to ensure that services were configured in the most effective and efficient way to address user needs. Survey data supported the development of some of the initial questions explored in the
organizational review, and was also used to inform the development of a number of user personas (e.g., first year undergraduate student, online Master’s degree student, tenured senior faculty member) used in discussions with staff about how their unit might be best configured to meet current and emerging user needs.

Survey results are also critical for the Libraries institutional annual budget narrative to the University. The results from a question asking faculty about the importance of scholarly journals to their work, for example, are useful for highlighting critical areas such as the ongoing importance of collections to support faculty research and scholarship. These results are effective in demonstrating the need for increased collections support. In addition, survey results are used to support the case for key staff positions in emerging areas of need such as scholarly communication.

Survey data has also been used in Libraries advancement and fundraising efforts to demonstrate to external stakeholders how the Libraries is meeting user needs and the impact of the Libraries on its users. Qualitative data from an open-ended survey question asking faculty and students to describe a time that library services, resources, or spaces had a positive impact on their work resulted in thousands of compelling user stories about the different the Libraries makes to its students and faculty.

For many audiences, such as community members and university administrators, hearing stories in users’ own voices can paint a compelling picture of the difference the library makes for students and faculty. User comments have been especially valuable when used in conjunction with quantitative data to provide a more holistic picture of Libraries value.

Using the 2016 Triennial Survey results to support organizational change, as well as budget and advancement efforts, has been valuable strategy for ensuring that data can be turned into tangible benefits for users. While this approach is focused less on improvements that are immediately visible to users, it is essential to ensure that the Libraries is continually keeping user needs in view and improving accordingly to meet the needs of our institution and community.

Lessons Learned
The revised process for the development and communication of results from the 2016 Triennial Survey, as well as using rapid follow-up assessments and aligning the survey with strategic and organizational priorities, was key to making changes based on survey data. Despite these successes, the authors are also considering how they might further improve their process for the next iteration of the survey in 2019. One area for attention will be raising the visibility of the survey results and other data sources used for budgeting and planning. For example, while the link between survey results, user needs, and requests for new staffing positions may be visible to Libraries Administration and those most directly connected to the request, this is not often visible to Libraries staff more generally.

In addition to greater transparency for using results in budget narratives, the authors also noted that more could have been done to encourage staff use of the Tableau dashboards. The use of interactive dashboards for the 2016 survey results transformed how we communicated results; however, Tableau was largely unfamiliar to staff prior to these Triennial Survey dashboards, and they were most often introduced to the tool in a demo alongside higher-level results presentations. Targeted hands-on training in using the various interactive features of Tableau may have increased Libraries staff comfort in consulting the dashboards for ongoing decision making beyond those interested in becoming power users.

Finally, one ongoing challenge (not new to the 2016 survey) involves the importance of tracking and communicating how results are used. While the authors can gather and communicate data, it is the responsibility of staff in specific units to implement changes based on survey results. In such a large, highly distributed system such as the UW Libraries, the action taken on results by individuals or units may not always be immediately visible or communicated directly to assessment staff (and may also occur after some time after the survey). For the 2016 survey, the authors increased their efforts to reach out to selected units after they had time to consider the results to ask if additional follow-up assessment was needed, if they had further questions, and if they had made any changes based on the data. This was a largely informal system, and in the future the authors are considering how to formalize this process using ongoing reporting mechanisms to track and communicate changes more effectively.

Conclusion
While the UW Libraries has a strong track record of using Triennial Survey results for improvement, the 2016 iteration further tightened that link and reduced the timeline between the survey development process and “closing the loop” on
results. A multifaceted and integrated approach to survey design, analysis, and communication can help libraries turn survey results into action. Using new methods of communication (such as interactive Tableau dashboards) to facilitate understanding and create engagement with results; employing strategies such as design thinking to more rapidly follow-up on survey data; and closely aligning survey results with strategic planning, budgeting, and organizational change initiatives can all assist libraries in creating buy-in from staff and producing meaningful changes for their user communities.

Notes

[1] Survey instruments and results (including dashboards and details about response rates) are available on the UW Libraries Assessment website: http://www.lib.washington.edu/assessment/surveys/triennial. A more complete review of user surveys at the University of Washington through 2014 can be found in the article by Hiller and Belanger (2016).


References


An Agile Planning and Operations Framework

Damon E. Jaggars  
The Ohio State University  
DeEtta Jones  
DeEtta Jones and Associates

Introduction
Following a transition in executive leadership in 2016, the Ohio State University Libraries embarked on an ambitious project to re-envision and renew its strategic directions. Prior to designing a planning process, library administrators reflected on past experiences with strategic planning, focusing on what was and was not successful. This reflection on past planning efforts exposed a common experience characterized as a muddied conflation of the strategic with the operational. The planning documents resulting from past efforts often obscured statements about strategic intent with over-designed implementation plans, which buried attempts to provide a clear articulation of where a library would place its strategic effort within overstuffed inventories of everything that library should be doing, defined strategically or not. Library administrators also reflected on how traditional strategic planning processes often consume libraries in extended, burdensome planning activities, which often result in static 3 to 5-year plans based on rapidly aging assumptions that can push organizations into collective psychologies of task list completion, undermining flexibility and openness to engaging unforeseen opportunities.

So, instead of traveling this well-worn path, the Libraries chose to design and implement an agile planning and operations framework (henceforth agile framework) designed to facilitate an ongoing organizational conversation about its strategic intent and how it will move from intention to reality. Loosely inspired by agile software development and project management concepts (EDUCAUSE, 2010), an agile framework would entail lighter-weight, open-ended planning, evaluation, and decision-making processes, allowing for increased flexibility and openness to unanticipated opportunities in its implementation. If realized successfully, such an approach would ensure the continuing integration of library faculty, staff, and external stakeholder voices into planning, management, and assessment discussions because the framework itself is conceived as an ongoing conversation with and between these groups. DeEtta Jones and Associates, a consulting firm with deep experience in organizational transformation, was contracted to help facilitate the overall design process and initial stakeholder engagement activities. The following describes the design and implementation processes through the lenses of both an academic research library director and a process consultant, sharing the methods utilized, early results, and some practical considerations.

Confronting Organizational Challenges
North American academic research libraries are experiencing high turnover at the executive leadership level, and new deans and directors are often utilizing more participatory management processes that actively engage people at all levels of the organization. A move toward the participatory shifts emphasis from "my way" to "the best way" and draws upon a broader chorus of voices to contribute to ongoing ideation, evaluation, and decision-making. A participatory leadership approach can also set the stage for more active feedback, iteration, and change at shorter intervals than can be seen in more traditional
management environments where planning and decision-making activities are often seen as the purview of a few at the top and occur at longer intervals (Allison and Kaye, 2015).

Initiating a participatory approach can be challenging for organizations that have relied on more traditional, command-and-control management structures (Gottleib, 2003). Many working in such environments assume that their work is dictated by a position description reflecting a core set of task-related responsibilities, with little to do with managerial process or the potential for significant change over time. In a participatory structure, employees at all levels are asked to take on, and must be accountable for, a broader set of strategic and shared leadership roles. When a new leader introduces a participatory approach, staff and managers alike can struggle to shift their behaviours to support the new approach, with its new expectations. The goal of the agile framework is to provide structure for a participatory management approach in ways that clarify expectations and support the learning necessary to create behaviour change at individual and organizational levels.

In the case of Ohio State, the University Libraries had operated within a relatively flat organizational structure but with decision making highly concentrated within the executive management team. Over time, operating in this way created hierarchical mind sets for people across the organization about decision making and authority that tend to hinder the development of a broad sense of shared leadership, engagement, and individual accountability for action. To advance a more engaged, accountable, risk-taking culture, several new activities and structures were instituted to reset expectations and learned behaviours across the organization.

Various formal and informal listening activities were initiated, as is common practice with leaders in the their first three to six months in their new roles, including skip-level listening sessions with the library faculty and staff in all departments, all-staff meetings, and informal small-group “coffees” open to all – each organized to elicit contributions and feedback rather than provide one-way information sharing. The executive team – the director and associate directors – participated in a series of activities designed to jumpstart team building, confront individual change resistance, and reset managerial, leadership, and communications expectations for the organization. A new middle managers group was created with the goals of broadening the voices engaged in strategic management and ongoing organizational development and to provide a forum to discuss and debate priorities and opportunities, as well as resource and learning needs. To facilitate the behavioural change necessary to operate effectively in a more participatory structure, a learning curriculum was designed for executive and middle managers with the goals of growing the individual and collective communications and metacognitive capacities necessary to increase engagement, accountability for decision making, and risk taking. Topics covered within this curriculum include emotional and social intelligence, difficult conversations and constructive criticism, understanding decision making, and effective meeting management, among others.

**Constructing the Context**

DeEtta Jones and Associates designed and facilitated focus groups for internal and external stakeholders with the intention of identifying thematic areas for consideration in planning. Focus group sessions included faculty and students (undergraduate and graduate) from across the disciplines, academic and administrative leaders, donors, and Libraries’ faculty and staff. Many of the themes that emerged from the focus groups were not unique to Ohio State but nonetheless valuable for developing the values, mission, and vision statements that underpin the organization’s new strategic directions. Stakeholders communicated the following through these context-building activities:

- The Libraries are well-respected and valued, particularly for the provision of content and for unique expertise;
• Stakeholders appreciate the changing operating environment, both changes happening within the university's strategy and culture and those in research libraries. They both expect and signal support for the transformation of research library work and its position on campus and in the community;

• Stakeholders are able to enthusiastically articulate contemporary and forward-looking ideas about how the Libraries can be an active partner on key university initiatives and in the research and learning processes. A heightened expectation for partnership and leadership by the Libraries is built on an expectation that Libraries' faculty and staff have unique skills with interdisciplinary applications;

• Being outwardly directed and transcending boundaries through collaboration, within and outside of the Libraries, will better align the organization with stakeholder expectations and cultural and societal changes;

• External stakeholders' expectations are more far-reaching and focused on new roles than those shared by internal faculty and staff; and

• Higher education is changing, and the university's culture is moving increasingly toward collaboration and interdependence, as are best practices in research, pedagogy, and resource sharing. Most future strategies will not be unique to the Libraries – they will be collaborative in nature, highly aligned with university and community expectations, which will require new mind sets for Libraries' faculty and staff and increased attention to organizational practices that emphasize shared leadership and continuous growth.

From this context, seven high-level planning themes were identified focusing on:

• The visibility and positioning of the Libraries within the university and community;

• Specialized skill development to support collaborative initiatives aligned with university priorities;

• Scalable and sustainable methods for engaging library services and expertise;

• Content and access, including digital and print resources, access tools, and physical facilities;

• Communications and marketing to strengthen financial and programmatic support;

• Culture shifts at the university and in higher education; and

• Developing a culture that empowers Libraries' faculty and staff at all levels, aligns organizational effort, and embraces learning and growth.

**Designing the Framework**

From these high-level planning themes, a concise statement of the Libraries' strategic intent was developed, which includes foundational articulations of who we are, what we value, and our vision for the organization, along with directional statements and areas of focus flowing from this context (Ohio State University Libraries, 2017). Like many traditional strategic plan implementation efforts, the Libraries' strategic directions are operationalized through more detailed action plans at the divisional and unit levels, clearly mapped to projects and initiatives emanating from these high-level directional statements and focus areas.

What differs from traditional implementation processes is the agile framework itself: an operational structure designed to harmonize planning, management, and assessment processes over 12-18 month rolling time horizons during which organizational efforts and investments are reviewed and revised in
an ongoing, iterative fashion. This structure is conceived as a relatively lightweight, ongoing organizational conversation, facilitated within Management Committee, a group comprised of the Libraries’ executive team and middle managers, with periodic input from other internal and external stakeholders through typical feedback mechanisms, such as surveys, focus groups, and individual interviews. This framework provides a platform for broad discussion about changing user needs, emerging opportunities, and other evolving contextual factors through a series of structured processes for assessing current activities, evaluating proposed initiatives and investments, and regular environmental scanning. Agile planning and operations is, practically speaking, the combination of standard planning and project management activities implemented within an iterative framework designed to measure success on a rolling basis, make right-sized adjustments, and actively feed new information into the process to inform future decision making and organizational learning.

Any initiative proposed in support of one or more of the strategic focus areas is initially evaluated using a set of principles to guide decision making and prioritization within the agile framework:

- How would the activity align with Libraries’ strategic objectives and university-level priorities?
- Is the activity scalable, sustainable, and programmatically focused?
- How would the activity increase or decrease organizational efficiency or impact?
- How would the activity advance organizational equity goals?

Each proposed activity or initiative is also interrogated in terms of resource needs and cross-organizational interdependencies in an effort to expose any potential hidden costs or downstream consequences of taking a particular path. All proposals must also suggest high-level success metrics in the form of an impact narrative. Such a narrative describes how a proposed activity will positively impact the Libraries’ ability to execute on its strategic intent. Impact narratives normally focus on how an activity will advance or enable some aspect of the university’s research, teaching and learning, or outreach and engagement missions, as reflected in the Libraries’ strategic directions and focus areas. The emphasis on impact to mission is critical for maintaining alignment with institutional priorities, rather than those of the library in isolation. In addition, this sort of aligning activity stimulates a fundamental motivator for knowledge workers – purpose (Pink, 2009). It also provides an important channel for managers to communicate and reinforce the connection between an individual’s work and broader organizational objectives.

Once an initiative is approved, project leaders produce an implementation road map using standard project management concepts and tools (timelines, milestones, etc.). At this point, more granular quantitative or qualitative metrics are developed for ongoing evaluation purposes. These are all used as the basis for routine reports to Management Committee, where project leaders discuss successes, failures, and challenges overcome for the initiative. Once implemented, each initiative is reviewed for continuation, revision, or cessation on a regular basis utilizing a lightweight assessment tool that measures success in meeting project goals, as reflected in the initial proposal and more fully articulated success metrics.

The academic research library operating environment changes quickly, so a lightweight environmental scanning process was designed to be conducted annually for each strategic focus area, with the twin goals of identifying emerging opportunities and providing a reality check on earlier planning assumptions. An emerging opportunity identified in this process might result in a proposal for a new initiative or an alteration to a current one. This scanning process also provides an opportunity for the organization to update its understanding of the current and projected contexts underlying each strategic
focus area and to determine to what extent current activities remain aligned with university-level priorities.

**Moving Forward**

Motivating the design and implementation of an agile planning and operations framework is a desire to construct an architecture for iterative strategic thinking and action that obviates the need for the Libraries to drop everything every three to five years and consume itself for an extended period to build out a new, static strategic plan. In implementing the agile framework, we aspire to develop an effective planning and operations environment more inclusive of internal and external voices and more sensitive and open to unforeseen opportunities. If successful, the Libraries’ strategic intent and the operational work done to support it should evolve in a more organic fashion through meaningful, ongoing dialog about organizational priorities, informed by engaged interaction with users, internal and external stakeholders, and university-level planning efforts. The Libraries would be more adept in responding to emerging opportunities and recognizing when to move on from unsuccessful or ineffective activities because the mechanisms for detection and analysis are built into the framework and instantiated in organizational structures and processes.

Development and implementation of the agile framework is ongoing, but there are some early indicators of potential success. The initial set of proposed projects and initiatives supporting the Libraries’ new strategic directions and focus areas are moving through a freshly designed proposal evaluation process; and a rolling calendar detailing timelines for the activities that comprise the agile framework (proposal deadlines, project updates, evaluation discussions, environmental scans, etc.) is near completion. Engagement throughout the planning process, both by Libraries’ faculty and staff and external stakeholder groups, has been very high. There is a strong sense of ownership of the Libraries’ new strategic directions and growing buy-in for a new approach to planning and management. And while happening more slowly than anyone would like, the organization’s culture is beginning to change. Middle and executive managers have embraced an ambitious learning curriculum and are doing the hard work to integrate what they learn into their leadership practice. As a result, structural and cultural barriers to shared leadership, increased risk taking, and accountability for action are being openly identified and solutions for overcoming them sought. Ultimately, success will be determined by the organization’s ability to positively alter its culture and sustain that change through individual and collective action. It is relatively easy to change structure and process. It is much harder to change culture and the behaviours it manifests.

**References**


Applying a collections categorisation framework: a pilot project at the University of York

Ruth Elder
University of York Library

Introduction

This is a case study showing how the University of York library designed a framework to identify, categorise and “tag” library print book collections based on analysis of their characteristics, subject focus, uniqueness and use level.

The framework provides a formal structure through which to understand the collections, to inform, review and prioritise local library actions and – potentially - to support wider collaborative collection management discussions and decisions.

The focus of the pilot project was on the development, testing and evaluation of the process to support the framework. It was also to identify the level of resource required, and to discover potential barriers to its operation at a broader scale.

The Higher Education (HE) Library Collection Management community is currently exploring the potential of collaborative working across shared print retention scenarios. The building of collaborative collections is dependent on commitments agreed between trusted partners. The agreements need to ensure the retention of “last available” or rare or unique items of value to the institution and/or the wider community. This information needs to be readily available in an accessible and searchable format through the “categorisation” or “tagging” of items.

Review of the collections

The initial action of the project was to undertake a detailed review of the collections at a University branch library, evaluating their size, characteristics, subject focus and use level. This was in order to understand their appropriateness, effectiveness and relevance in supporting teaching and research needs. It also highlighted their level of relative “rarity” and their value in the context of regional or national collections, by benchmarking against other libraries through the use of the Copac Collection Management tool.

The limited size and range of the collections at this library were considered manageable in terms of developing processes and meeting the challenges of the project without initially having to address the issues at scale (34,000 items reviewed.) All print monograph stock was in scope for the pilot; digital and electronic resources, journals, audio visual, theses, photocopies and microform material were excluded.

Categories allocation

One of the major challenges of the project was to determine appropriate criteria for each of the categorisation areas. (The criterion is to help guide and inform the allocation process, and it is noted that the criteria selected at University of York library may not be considered appropriate by a different HE library.)

The four categories were named as: Heritage, Self-renewing, Finite and Legacy.
(Initial design of wording, subfield codes and information within the MARC tag, were first suggested by Emly 2016.)

The criteria for each categorisation was then defined following discussion around the collection reviews. It became evident that the most effective methodology was to identify the more easily identified categories first (the “knowns”), and to “edit” them out of the total stock holding before addressing the categorisation of the remaining items/collection (the “unknowns”).

In practice this resulted in initially identifying Heritage stock. This was relatively straightforward to recognise (following the collection reviews), as fulfilling the criteria of particular uniqueness, significance or specialism to York. Matrices relating to level of stock use, period since acquisition and availability elsewhere were developed for the three alternative categorisations.

It was noted that the four categorisations do not reflect a hierarchical structure. Stock does not – for example -necessarily move over time from an initial categorisation of Heritage (on acquisition) to a final categorisation of Finite (potentially appropriate for disposal.)

Criteria for categorisation

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria (fulfilling one or more points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heritage:</td>
<td></td>
</tr>
<tr>
<td>Items defined as having special significance to the University, city or region e.g. rare books</td>
<td>• Relatively rare or unique to York OR • Specific to York / Yorkshire OR • Held in Rare Books Collections OR • Specialist research area of particular significance OR • A collection of significance to the University, city or region</td>
</tr>
<tr>
<td>Self-renewing:</td>
<td></td>
</tr>
<tr>
<td>Items in high demand that support taught causes e.g. titles on reading lists or in High Demand section</td>
<td>• Item has had 5 or more loans (or ‘Left in library’) in the previous 3 years OR • Item has been used in High Demand section in the last 2 years OR • Item is on a current or previous academic year reading list</td>
</tr>
<tr>
<td>Legacy:</td>
<td></td>
</tr>
<tr>
<td>Items with potential to support research, of lower demand but still having relevance</td>
<td>• Item has been in stock for less than 10 years OR • Item has been loaned (or ‘Left in library’) in the past 10 years OR • Item held in fewer than 10 Copac libraries</td>
</tr>
<tr>
<td>Finite:</td>
<td></td>
</tr>
<tr>
<td>Low demand, older items which are commonly held across other RLUK Libraries and have little relevance to the University</td>
<td>• Item has been in stock for more than 10 years AND • Item has not been loaned (or ‘Left in library’) in the last 10 years AND • Item is held in 10 or more Copac libraries</td>
</tr>
</tbody>
</table>

Table 1

Tagging of catalogue records
To ensure the robustness and efficiency of the process at scale tagging at both bibliographic and item level has to run as an automated process. Normalisation rules were created within the library management system (LMS) to effect global changes to bibliographic records and batch changes to item records.

After the creation of a suitable set of physical items, the appropriate categorisation was inserted as an internal note at item level. This is an internal process allowing the identification of items for retention or to give multiple items different categorisations if necessary.

At the bibliographic level two MARC tags were identified as appropriate to insert categorisation information (fields 583 and 983.)

![Figure 1](image1)

**Figure 1**

The 583 tag is used to record preservation actions and may potentially be publically displayed in union catalogues to indicate York’s retention decisions. (Identical information was noted in the 983 field - searchable within LMS Ex Libris Alma.) Experience highlighted that for all collections it is advisable to tag item records prior to the tagging of the Bibliographic records.

**Categorisation results**

![Figure 2](image2)

**Figure 2**
22% of the stock reviewed was categorised as Heritage; stock which is distinctive to the institution. This group is mainly formed of specific gift collections with the addition of specialist subject areas of particular value in supporting teaching and research. The percentage of Self-renewing items was 4%, which suggests that there is a small core of the collection which is loaned relatively frequently or is a current requirement to support courses taught at this location. 11% of the collection was categorised as Finite. These items are very low use and are widely available in other Copac libraries. The remaining 63% of items have a categorisation of Legacy. This includes three named gift collections, but also a significant amount of the total stock holding at the library which though low use, is not widely available elsewhere. The low percentage of Self-renewing items and the relatively high level of Heritage items support the concept of the library addressing more specialist needs, and holding a significant proportion of research (rather than teaching) based materials. This reflects the “long tail” of material which has low, infrequent use but contributes to the research holding of the library as identified in the RLUK/OCLC publication Strength in Numbers: The Research Libraries UK (RLUK) Collective Collection (Malpas and Lavoie, 2016.)

Actions

Once the categorisation process was completed a plan of potential actions was created in conjunction with the library Collection policy and priorities. Heritage items are considered priority items for promotion, digitisation, preservation and conservation. Heritage stock is only to be reviewed in response to exceptional circumstances. Self-renewing, Finite and Legacy categorisations will be renewed annually, and the review may impact on their most appropriate categorisation, shelf location and level of available access as use pattern changes over time. The intention is to now roll the framework out across the main University library.

Outcomes

The review process has helped to redefine and refresh understanding of the nature of collections and to re-evaluate previous practices. The framework and categorisation will support and shape future collection management decisions with accurate, relevant quantitative data. The initial development of the processes was relatively time intensive, but once designed the production of future reports will take significantly less resource. One outcome of implementing the categorisation framework has resulted in the agreement with academic departments of an annual process for the review of print book collections. Focused on the Finite criteria the library can now produce shorter, more focused reports to share with departments in order to discuss retention and withdrawal priorities. Associated with the review and categorisation process there is now an explicit demonstration to academic staff of the library’s evaluation of its collections within local, regional and national contexts. The categorisation work also informs ongoing discussions with regional partners in regard to identifying a shared lexicon and understanding of collections categorisation and input to collaborative collection management discussions at a wider level.
References


Building a Responsive, Transformational Workplace Culture Utilising the Evidence-Based Leadership℠ Framework

Prof. Lorene Flanders (University of West Georgia), Dr. Janet Pilcher (Studer Group), Mr. Elijah Scott (Florida Academic Library Services Cooperative)

Purpose
The workplace of choice is characterized by motivated employees and built by purposeful leader engagement with employees. The University of West Georgia (UWG) and the Florida Academic Library Services Cooperative (FALSC) have employed the employee engagement survey instrument developed by Studer Education, a division of Studer Group, a leading service provider focused on improving education and health care outcomes in organisations throughout the world. Studer Education’s Evidence-Based Leadership model helps leaders achieve results by coaching around a continuous improvement framework centered on best practices to help institutions create cultures of excellence. Working with the Evidence-Based Leadership℠ framework, leadership teams define and execute aligned systems and processes to maximise organisational and individual performance.

Methodology
The Evidence-Based Leadership℠ Framework was created following a 2004 study of high performing organizations (Organizational Change Process in High-Performing Organizations: In Depth Case Studies with Healthcare Facilities, Alliance for Healthcare Research, 2005). In this study, an organization was classified as high performing when it achieved and sustained statistically significant progress over a minimum of three years on measurable criteria, including: (1) increases in customer satisfaction; (2) increases in employee engagement; (3) reductions in employee turnover; (4) increases in market share, financial returns, or other growth indicators; and (5) improvements on quality indicators.

To explore characteristics of high performing organizations, the team of researchers completed in-depth personal interviews with all service-level managers at each facility. Five success factors consistently emerged as the most influential: (1) executive and senior leadership commitment and relentlessness to achieve results; (2) leadership accountability and consistency of leadership practices; (3) commitment to leadership development; (4) alignment and processes for communicating with employees; and (5) being able to communicate why decisions are made and why the decisions are the right ones to make.

A second set of data and results that inform the Evidence-Based Leadership℠ Framework comes from an organizational assessment the Studer Group and Studer Education continue to analyze in both healthcare and educational organizations. To date, the organizational assessment has been administered to about 40,000 healthcare and educational leaders.
Studer Group created this tool to align to the five success factors: alignment, readiness for change, leadership fundamentals, self-awareness, consistency, and accountability. The Studer Group used the findings from the study and John Kotter’s concept of urgency to design the assessment. The high level findings are:

- Senior executives have more urgency for change to achieve and sustain success than other leaders in the organization and the closer the leaders are to employees the lower their urgency for change.
- On average about 37% of leaders believe that if the organization stays the same, the results will be the same, better or much better.
- Leader accountability and development, on average, are rated fair in most organizations.
- Leaders tend to be aware of how their employees and customers perceive their organization; Their perceptions typically align to employee engagement and customer satisfaction results or how their employees and customers feel about the organization.
- Two of the lowest scored items on the organizational assessment are lack of consistency in leadership practices and the leaders’ inability to consistently apply best practices throughout the organization.
- Leaders do not perceive that their leader evaluations align to measurable outcomes they are accountable for achieving; in many cases, the outcomes in the organization are not well aligned to their units and not defined in measurable ways.

In opening dialogue with employees to transform workplace culture, leaders must explore the organisation’s lowest survey scores or greatest challenges, and work with employees to identify strategies to improve the workplace. They must be willing to engage in difficult conversations and encourage employees to overcome any hesitancy and fear in communicating their concerns and ideas. Leaders must also discern what employees find most positive about the workplace, celebrate successes, and identify ways to build upon successes. These processes allow leaders and employees to engage in ongoing dialogue and planning to create a nimble and responsive workplace culture supportive of transformational change.

Findings:

Real-world examples of the use of the Evidence-Based Leadership℠ Framework in the library environment are underway at UWG and FALSC. UWG has conducted annual employee engagement surveys since 2014, with response rates as high as 90%. The university received the 2015 Award for Innovation and Excellence in the Leadership Development and Diversity from the American Association of State Colleges and Universities for its Engage West initiative to assess employee engagement and develop accountable leaders supportive of shared governance and co-leadership. The survey solicits employees’ perceptions concerning engagement, leadership, mission and goals, communication, campus climate, pay and benefits, and work/life balance.
At UWG, supervisors are required to roll out survey findings and explore the meaning of survey results with their employees. Library leaders use a variety of settings, soliciting employee feedback through large and small group discussion, and providing opportunities for private, individual sharing. Following individual and group review of input, action plans for workplace improvements are developed and implemented prior to the next survey cycle. The library’s department heads work with their departmental results and employees, while the Dean rolls out the survey results with the entire library, as well as with the library’s leadership team. These processes result in employee-driven development of action plans at the library, administrative, and departmental levels. Leaders periodically monitor plans through reality checks conducted through the year.

This process is the foundation for the cycle of regular reviews and updates that is essential to the success of the Evidence-Based Leadership℠ Framework. This process also enables leaders in the library environment to respond quickly and positively to changes in our profession. Changes in collection management and service provision continue to press libraries to evolve in order to support the needs of teachers and learners. In order to transform the organisation in ways that respond to ongoing and disruptive change, library leaders must systematically engage stakeholders in identifying challenges and finding direction. Opening dialogue with employees is vital to establishing and maintaining a positive workplace culture. Leaders willing to listen and respond to challenging input and take steps to transform the workplace establish trust and empower their employees through fostering a culture where risk taking is accepted and change is anticipated. As libraries evolve their service and collections models and re-envision their facilities, an atmosphere of openness to ideas is vital to responding to changes in libraries and higher education delivery.

When organisations go through dramatic change, it may difficult to maintain and grow a positive workplace environment. Disruptive change may challenge and even seriously damage morale. An example of this situation is found within the Florida Academic Library Services Cooperative (FALSC). The Florida Academic Library Services Cooperative is a division of the Florida Virtual Campus (FLVC), administered by the University of West Florida Innovation Institute. FALSC is a relatively new organization that was created by a legislatively mandated merger of several legacy organizations.

FLVC was created under statute in 2012 through the consolidation of four statewide organizations: the College Center for Library Automation (CCLA), the Florida Center for Library Automation (FCLA), the Florida Center for Advising and Academic Support (FCAAS), and the Florida Distance Learning Consortium (FDLC). FALSC was subsequently established as a division of FLVC by Florida statute in 2014.

The four legacy organisations had varying missions, different working environments, and dramatically dissimilar organizational cultures. The initial merger in 2012 was difficult and resulted in substantial numbers of long-term employees leaving the organization. The subsequent reorganization in 2014 was less dramatic, but again resulted in key team members
leaving the organization. By 2016, FLVC senior leadership was well aware of challenges of morale facing the organization, and chose to work with Studer Education in an effort to move toward a workplace of excellence.

The first step in implementing the Evidence-Based Leadership℠ Framework was to use an survey tool to establish a baseline assessment of the work environment. An initial Employee Engagement Survey was administered among FLVC leaders in September 2016 in an effort to establish a baseline measurement. 23 employees, all of whom function in supervisory roles, participated in this survey. Categories for the survey included Personal Feelings about My Work; Supervisor; Senior Leadership Team; Communication Focused on Organizational Culture; Treatment of Staff; and Pay and Benefits. Using a scale of 1 to 5, the overall mean for all questions was 3.53. The highest score by category was in Personal Feelings about My Work, which had an overall category mean of 3.92. The lowest score by category was Treatment of Staff, which had an overall category mean of 2.69.

In November 2016, a Leadership Development Institute (LDI) was held in order to review and discuss the survey results as well as to identify areas for improvement and strategies to begin creating improvement. This LDI included only those employees who had participated in the earlier survey in September 2016, all of whom are in supervisory roles. The goal of this meeting was twofold – first, to review and analyze the results of the September survey; and secondly, to familiarize supervisors with the overall process of implementing the Framework and engaging all employees with the process. Based on the results of the September survey, the group identified five areas that all agreed are working well:

- Employees feel they are committed to FLVC and have a sense of pride about working at FLVC.
- Employees feel their work is meaningful.
- Employees feel they make a positive impact at FLVC.
- Employees feel they are committed to doing a good job.
- Employees have a positive perception about their supervisors and believe their supervisors care about them.

Concurrently, and perhaps more importantly, the group also identified five areas which need improvement:

- Employees want better communication about the direction of FLVC and as part of the communication they want to know how decisions impact them.
- Employees feel a need to know why decisions are made and how those decisions impact FLVC.
- Employees feel that there is an inconsistency in the way work practices are applied across FLVC, and there are inconsistencies on how employees are held accountable or rewarded.
- As leadership has changed over time, employees tend to be unsure of the direction and priorities for FLVC, and how changes will affect them.
Results indicate that some employees do not feel valued or recognized for their contributions. This meeting was one of the first steps in the iterative process of analyzing the results from the September survey in order to build positive change within the organization – or, as the LDI facilitator described it, turning input into action.

The next step in the process was to administer the same survey to all employees in the organization. This survey was presented in March of 2017 to the full body of employees at the Florida Virtual Campus, of which FALSC is a subset. 71 employees, which equates to 87.7% of the total, participated in the survey.

The March survey included the categories of Workplace Environment; Senior Leadership Team; Treatment of Staff; Pay and Benefits; and I recommend FLVC as a good place to work. Using a scale of 1 to 5, the overall mean for all questions was 3.09. The highest score by category was in Workplace Environment, which had an overall category mean of 3.24. The lowest score by category was Treatment of Staff, which had an overall category mean of 2.66. Note that these high and low scores closely mirror the results from the September 2016 survey of supervisory staff, in which the highest score was in Personal Feelings about My Work at 3.92 and the lowest score was Treatment of Staff at 2.69. The close relationship between these high and low scores across the two different survey administrations build a correlation between the assessed areas of success and areas for improvement.

From the results of the March survey, the Executive Team identified areas for improvement along with specific action items. As an example, one area for improvement, and the concurrent action plan, was described as:

- **Senior Leader Check Ins**
- **Staff members are divided among five Executive Team members. Each quarter, Executive Team members will check in with their designated staff. Staff members will rotate to different Executive Team members each quarter for check ins (continuous cycle)**
- **Each quarter, every staff member will receive a “check in” (in person or virtual) from one of the five focused on the following questions:**
  - What’s working well for you?
  - What’s barriers or challenges are you facing to achieve your job outcomes?
  - Has there been anyone who has been helpful to you in the past few weeks or month?

Eight areas of work for improvement, along with corresponding action plans, were identified by the Executive Team, based on the survey results.
It is important to stress that the September 2016 and March 2017 surveys, along with the resulting plans for action, form only the preliminary steps in the process to implement the Evidence-Based Leadership℠ Framework. The first two surveys establish a baseline measure to assess the current status of the organization. The resulting action plans enable the Executive Team to work with all staff to address the areas of improvement identified via the survey results. However, this part of the process is only the first of a series of steps in an ongoing, iterative process that will continue over a period of multiple years. With each iteration of this process, the survey will be re-administered, and the results re-assessed. Subsequent survey results will provide data to determine if action plans are successful; if goals for improvement have been met; and what new areas for improvement may be identified. The evidence from surveys and subsequent LDIs enable leadership to use concrete data to improve employee engagement and overall employee satisfaction.

**Conclusions:**
As libraries face increasing pressures to provide relevant resources and meaningful services in a time of rapid and dramatic change, those who work in library management must work diligently to ensure that the library workplace fully engages all workers and provides ample opportunity for job satisfaction. One tool that can assist in this effort is the Evidence-Based Leadership℠ Framework, which uses a structured process to identify areas within an organization which may need improvement, as well as to build action plans to assess those areas. The Evidence-Based Leadership℠ Framework provides long-term value to the organization via an intentional, iterative process to repeatedly assess the status of employee engagement and the results of successive action plans. A key to the success of the Evidence-Based Leadership℠ Framework is a program of transparent and frequent communication with employees. This paper describes implementation of the Evidence-Based Leadership℠ Framework in two library environments.
Building Student Support to Facilitate Change

Susan M. Thompson

University Library, California State University San Marcos

Introduction
This article discusses how we successfully improved our library’s hours, including introducing 24 hour access, thanks largely to developing a partnership with our students. California State University San Marcos (CSUSM) is one of the newer campuses in the California State University system, founded in 1989. Today we have grown to over 14,000 students and the library’s staffing to 18 librarians and 30 staff. Students have always liked the University Library. Our overall Customer Satisfaction score for the last 10 years has consistently ranged above 90%. However, since the CSUSM University Library’s building opened in 2004, the most consistent student compliant has been its short hours. Since that time, we have found it difficult to significantly expand our library’s hours of operation, primarily due to lack of funding to hire the staff needed. In 2015, it became one of the goals of our strategic planning process to identify ways to expand operational hours. It was decided to conduct a survey in order to better understand our students’ library hours needs and to elicit suggestions on how best to meet those needs. A combination of the way the survey was designed and analysed, timing of incremental changes and follow-up survey, and, most of all, communication with our users throughout the process, resulted in developing an unexpectedly fruitful relationship leading to successfully meeting our hours goal.

Literature Review
When the CSUSM University Library designed its hours survey, we included a question on 24 hour access but we didn’t expect it to be a priority for a significant number of our respondents. We were wrong – 94% of survey respondents wanted this service. The literature strongly supports the desire for 24-hour library access as an important expectation by today’s students. Albanese puts it simply as “students are increasingly pushing for a campus library that never closes” (Albanese, 2005, p. 42). The digital revolution which provides access to library resources anywhere would seem to reduce the need for a building but, the internet always being ‘on,’ also means that students can do their work at any time of day. Students have needs that are best met in a physical place that allows getting together with other students, having a central place that is comfortable with ready access to resources, and enabling students to work on their own clock. Not surprisingly, the budget is one of the biggest obstacles to expanding hours. Staffing can also be challenging when covering 24-hours due to working non-standard hours and meeting security and maintenance needs.

Lawrence and Weber confirmed that students using late night hours focused on studying and did not party or sleep in the library as originally feared (2012). Patrons placed a high value on late night hours, seeing the library as a “quiet peaceful space conducive to study” (2012, p. 528). Scarletto, Burbanna, and Richardson found that their late night students preferred studying at this time consistently and had a relatively high proportion of students who had higher GPAs and retention rates (2013). Services that late night students tended to use included Internet access, printers, computers, and online databases and electronic resources. They were also interested in comfortable furniture and access to food and drink.

A major consideration in our survey design was how to provide students with an opportunity to provide specific suggestions on how to improve our hours. Malone found with their surveys that students’ “free text comments enabled staff to influence significant changes to a range of services” (2013). Communication, including using ‘You said, we did’ leaflets, also helped their library build a stronger working relationship with the university’s student organization.

Appleton discusses the difference between considering students as ‘customers’ vs. ‘partners’ (2013). Students as customers implies the library will engage with students to understand and enhance the user experience. The library’s relationship with students can be further enhanced by actively listening to student input and providing feedback on the library’s subsequent improvements made in response to students’ suggestions. Working with students as partners means going even further and involving students in the “co-creation of their educational experience” (2013, p. 14). Creaser points out the importance of communication in making the library more visible (2013). By raising awareness of the library’s services, including marketing them directly, the library demonstrates its value to users. Communication is also an important component of Mathew’s suggestions for “building multi-layered partnerships between a library and the community it serves” (2009, p. 69). In particular, directly communicating with affiliate audiences, such as the student government, appeals to their sense of obligation and helps the library connect to people with an accepted role on campus who can potentially influence campus perceptions and actions.

Survey Methodology
CSUSM University Library decided to use a survey as the primary mechanism to obtain student feedback about library hours. The survey questioned respondents’ satisfaction with specific hours of operation – Monday to Thursday, Friday, Saturday, and...
Sunday – as well as their interest in, anticipated usage of, and expectations for a 24 Hour Study space. In addition to a Likert satisfaction scale, an area for suggestions was provided for each time period. A copy of the survey instrument is in the appendix. The survey was conducted the first two weeks of December 2015. That period was chosen because it was during finals, which tended to mean more students were on campus and that they were experiencing a heightened awareness of the library’s availability for study.

We felt it was important to reach a wide variety of student audiences. The survey was distributed both online and in paper form. The online survey was placed as a prominent link on the library website and depended on users voluntarily clicking on the link. In addition, the library posted in course online containers a link to the survey worded “if you want more hours in the library, fill out this survey”. Paper surveys were also distributed both in the library and around campus. In the library, stacks of surveys were placed in prominent places near the library entrances along with pencils and a sealed collection box. At each of the service counters, surveys were also ‘pushed’, that is staff asked users during their transaction if they would like to fill out a survey. Pencils and a quiet section of counter were provided in hopes of encouraging filling out the survey on the spot. Finally, tables were set up around lunchtime at popular locations on campus near the student union and Starbucks coffee. Staff volunteers manned the tables and solicited students walking by. Bags and pens with the library logo were offered as incentives.

The library also contacted the university’s student government, Associated Students Inc. (ASI). They were eager to help encourage students to participate in the survey. Their only request was that we inform them of the survey’s results. It turned out to be one of the most significant decisions of the project and was to have a major impact on the library.

Survey Results

The survey was completed by 862 respondents in all. 436 respondents used the online survey and 246 used the paper. Regardless of survey type, 98% of the respondents were students.

Students were most satisfied with Monday – Thursday hours (Figure 1) with an overall satisfaction rate of 84% – 59% being ‘Very Satisfied’. Friday hours (Figure 2) showed the least amount of satisfaction with an overall satisfaction rate of 51%, with only 19% being ‘Very Satisfied’. Saturday hours also had relatively low satisfaction with 58% overall satisfaction and 69% of survey respondents were satisfied with Sunday hours.

A very decisive 94% of all survey respondents said ‘Yes’ they were interested in a 24 hour study area. 57% of respondents were interested in 24 hour access all semester. The top services that over three-quarters of the students wanted in a 24-hour study area were computers (81%), printing (79%), and group study rooms (78%). Around half the respondents also wanted access to copiers, reserve books, and all library books. The service needs responses turned out to be critical in determining if the entire library needed to be open or if part of the building would serve.

One of the biggest surprises of the survey was how interested students were in adding their own comments in addition to their Likert satisfaction responses. Respondents had five opportunities to provide suggestions – four hours-related for each specific time-period during the week and a general category for any suggestions on how to improve the library. Respondents were eager to offer very specific ideas on how to improve library hours – ranging from 47% of the Monday-Thursday respondents to 65% of the Friday respondents providing suggestions. The difference in the number of suggestions seemed to reflect the level of dissatisfaction with current hours so that Friday and Saturday responses offered the largest proportion of very specific suggestions on hours to change.
Interestingly, Figure 3 shows the Friday and weekend suggestions had little interest in 24 hours during that time period. In contrast, even though 84% of the Monday-Thursday respondents were satisfied with current hours, over 25% were interested in extending to 24-hours according to their suggestions. The interest in 24-hour study also showed up in the general comments where the top suggestion (15% of respondents) was for 24-hour study.

**How We Responded After the Survey**

As interesting as the survey results were, it is what happened afterward that makes this a success story.

We started by making incremental changes. The students’ suggestions played an important part of the library’s plan of action for improvements. Changes made in response to the survey included immediately adjusting our Friday and Saturday hours so we could close an hour later Friday evenings and open an hour earlier on Saturday mornings. The changes were minor, since we had to work within our current staffing, but they cherry-picked from the most popular suggestions for those days. We also made the change just a month after the survey, as spring semester started in January. We heavily advertised these changes by posting prominently on the website and on sandwich boards outside the library. Anecdotally it appeared that students were making the connection between the survey and the new hours, pleased to see their suggestions taken seriously.

The very next month, February, the library’s annual Customer Satisfaction Survey went out. The proximity in time to our hours survey, while accidental, felt like we were almost having a dialog with our users. The first survey asked students for their ideas on how to improve the library’s hours as well as their satisfaction with current hours. Then, after the library made some incremental changes based on these student suggestions, we asked them again how satisfied they were with hours. This time the Customer Satisfaction Survey’s weekend hours score increased to the satisfied level. The fact that the Customer Satisfaction Survey’s weekend score had crossed over into ‘satisfied’ was particularly noteworthy because this was the first time in 10 years of administering the survey that the score was higher than ‘very dissatisfied’. A promising indicator that we were moving in the right direction. However, a perhaps even more interesting result of the 2015/16 satisfaction survey was the significant increase in participation. The preceding year, 2014/15, 331 students filled out the survey and provided 12 comments. In 2015/16, student participation almost doubled to 604 and comments dramatically increased to 200.
These numbers lead to speculation that the earlier hours survey followed by immediate changes may have helped trigger more interest in the library--that students felt the library was actually interested in listening to and responding to their suggestions.

One of the most significant results of the hours survey was how strongly students wanted to be able to study 24-hours in the library. With 94% of the respondents wanting this service, being open 24-hours became a priority for the library. However, the staffing requirements, among other things, for even the most basic form of 24-hours would be very expensive. During spring semester, the library administration looked into options for additional funding that might support this service. Unfortunately, the possibility of getting such a major budget increase from the university proved unrealistic. Even worse, the state university system was beginning to experience a downturn in its financial situation.

**Students as Partners**
The one thing the student government (ASI) had asked when they agreed to help promote the hours survey was that we let them know about the results. The library administration contacted the ASI president in February and sent her a 2-page summary of the results. While she was pleased by the results, it was near the end of her administration so she said she would put the results in ASI’s binder which carries forward ideas and needs for the next ASI board to follow up on. We thought we were done.

In June, the library was surprised when one of the first actions of the incoming ASI president was to visit the library to talk about the hours survey results. In particular, he had a personal commitment as president to extending the library’s hours. Upon learning the library could not afford to make the increase, he informally proposed ASI contribute funds to make it possible. A couple of months later, ASI approached the library administration with a formal proposal to include increasing library hours as part of a proposed student fee increase. Negotiations helped shape what this 24-hour service would actually look like and how much money was needed.

In fall 2016, the ASI proposed fee increase was put before the student body. In the literature about the fee increase and promotional outreach to encourage students to vote, the funding of library 24-hour study was prominently mentioned. The student body passed the fee increase, the first in almost twenty years. The next eight months after the election were used to plan the 24-hour service with our new student partners.

**Making 24-hours a Reality**
Operational planning after the fee increase was passed fully involved ASI. To make the student government a formal partner with the library on the 24-hour project, a 5-year Memorandum of Understanding with ASI was created to define each party’s responsibilities and funding commitments. This was the first time the library had made students an active partner in defining and managing a major library service.

Data from the hours survey was critical in defining how we were going to meet the student’s needs. The final 24-hour commitment included:

- 24-hours study would be available five days a week, Sunday-Thursday, rather than seven.
- Part of the library would be 24-hours rather than the whole building (Figure 5). The space was renovated to better suit late night study.
- The space included the top facilities requested by students: comfortable furniture, study rooms, computers, and printers and copiers. We even upgraded the vending machines with better food and drink options.
- Library staff would be available to monitor space, checkout materials, answer questions, and page materials, including reserves, from other floors.

**Lessons Learned**
Our experience during the hours improvement project changed how the library thinks about the role of students in assessment. By including very specific opportunities to provide suggestions, we found that students could actually help develop the solutions. Advertising the survey in a variety of venues, coupled with making it available online and in print, helped increase awareness and participation. We also learned that responding quickly was key. Immediately responding with small steps in the right direction, rather than delaying until a complete solution could be found, led to increased interest and participation by students.
Finally, we learned the importance of thinking of our students, not just as customers to be satisfied, but as partners in setting goals and helping to find solutions. Involving the student government in the assessment process was done initially to increase the number of student participants, but this move bore fruit beyond our expectations leading to discovery of a satisfactory solution that no one could have envisioned at the outset. The resulting buy-in from students meant that we were able to achieve a major goal that was otherwise out of our reach.

References


Appendix

Help Improve Library Hours

1. How satisfied are you with current Monday-Thursday library hours of 6AM to Midnight? 
   ○ Very satisfied ○ Somewhat Satisfied ○ Somewhat Dissatisfied ○ Very Dissatisfied
   a. What suggestions do you have for improving the Monday-Thursday hours?

2. How satisfied are you with current Friday library hours of 7AM to 5PM?
   ○ Very satisfied ○ Somewhat Satisfied ○ Somewhat Dissatisfied ○ Very Dissatisfied
   a. What suggestions do you have for improving the Friday hours?

3. How satisfied are you with current Saturday library hours of 9AM to 5PM?
   ○ Very satisfied ○ Somewhat Satisfied ○ Somewhat Dissatisfied ○ Very Dissatisfied
   a. What suggestions do you have for improving the Saturday hours?

4. How satisfied are you with current Sunday library hours of 10AM to 6PM?
   ○ Very satisfied ○ Somewhat Satisfied ○ Somewhat Dissatisfied ○ Very Dissatisfied
   a. What suggestions do you have for improving the Sunday hours?

5. Are you interested in having a 24-Hour Study Area?  ○ YES, ○ NO (go to 6.)
   If YES, please answer the following:
   a. When would you most likely use 24-Hour Study?
      ○ MidTerms ○ Finals ○ ALL Semester

   b. What services/amenities do you expect to be available? (Check all that apply)
      ___ printing, ___ copiers, ___ computers, ___ access to reserve books,
      ___ access to all library books, ___ access to group study rooms,
      ___ access to research help ___ other (please specify)

6. Please suggest any other changes for the library
Choose Your Own Adventure-style Information Literacy Assessment

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Introduction
The Choose Your Own Adventure (CYOA) series, first published in 1979, were experimental gamebooks that allowed readers to direct the course of a narrative by selecting actions in a pre-written scenario. Also known as interactive fiction, this style of content is well-suited to digital platforms, and resources such as the Interactive Fiction competition and the open access Twine platform have democratized the creation of nonlinear narratives. With the popularity of “gamified” education, CYOA-style content has also been adapted for instructional purposes (Algar et al., 2016; Fraser, 2015; Stachowiak, 2015), allowing students to direct their own learning and flexibly encounter more traditional material. As an assessment method, CYOA-style content can provide rich, naturalistic insight into student research behaviors and decision-making far beyond the pre- and post-testing common to many information literacy practices.

This case study explores the challenges and opportunities of CYOA-style information literacy assessment, using insights from the “Choose Your Own Research Adventure” project at the University of British Columbia (UBC) to explain how these tutorials work, when they might be an appropriate method, and considerations for working with information literacy content in a nonlinear format. While this case study is focused on a single institution, many of these lessons could be applied in other contexts.

Project Background & Context
As part of a Teaching and Learning Enhancement Fund (TLEF) grant, the UBC Faculty of Land and Food Systems (LFS) restructured their curriculum in 2013-15 to better support distance learners, increase student engagement, and to assess and improve the research skills of their students. In summer 2015, librarians at Woodward Library, including the liaison librarian to LFS and a TLEF-funded graduate student, developed a Choose Your Own Adventure-style module to be added to the LFS Library Research Skills tutorial, which is required content in many graduate and undergraduate classes.

The previous year, the project team identified some key barriers to student success and used a card sorting technique to restructure the tutorial to better reflect student modes of thinking. The second year of the project was intended to apply those results and further align the library tutorial with the TLEF project goals. During the assessment process, the team realized that students’ lack of confidence was a concern they would like to better address. According to the project notes,

Most of the students apologized at some point for either their research process or how they sorted information, and some of them indicated that they thought they were doing research ‘wrong’. The process seems to be intimidating to them, and one that they want to do correctly but fear doing poorly.

As a result, any additional changes to the tutorial would be designed to reinforce student choices, validating and informing their existing habits rather than introducing new ones.

Other notes indicated that students valued finding information they “didn’t know [they] didn’t know,” but quickly disengaged when they weren’t able to skip content they felt they had seen before. These findings validated the overall goals of the TLEF curriculum redesign and its emphasis on flexible, student-driven content. However, revising the tutorial itself to reflect these goals was logistically difficult. Due to the course requirements, the library tutorial content needed to be hosted in the Blackboard Connect LMS, a program that enforces a strictly linear progression through course pages.

The Connect system added a few additional complications to the high-level assessment the project team was trying to accomplish. Although the LFS faculty and liaison librarian worked closely together, there was no way for them to see...
aggregate information about student engagement or disengagement within the asynchronous library content – each student had to be examined individually. As a result, the instructors had no way to compare the effectiveness of the tutorial across class levels and the librarian received no feedback (qualitative or quantitative) on revisions or improvements that may be needed.

Given these goals and constraints, the team designed “Choose Your Own Research Adventure,” a CYOA-style module embedded within the existing LFS tutorial. The module adopted the “assessment for learning” model where “the assessment activity itself an instructional episode” (Oakleaf, 2009, p. 540). Because the team had limited success implementing alternate forms of navigation through the LMS content, they were looking for an alternative way to meet the project goals. The embedded module solution emerged after a colleague gave a presentation on using UBC’s survey subscription as a way to get quiz functionality into Connect. The embed function and the branching logic in the survey platform allowed the team to create a much more elaborate scaffold for text that would display information based on student input. As the content was built using a survey platform, the team could also access and aggregate information about student choices throughout the embedded module, effectively providing us with the assessment data we needed.

“Choose Your Own Research Adventure” asked students to research a fictional marine creature in preparation for an assignment [1]. The module reiterated the concepts covered in the previous, more traditional, tutorial modules in a lighthearted way that positively reinforced student choices at every step of the process, even when (rarely) redirecting them toward a more productive path. Through this tutorial, the team was able to assess students’ familiarity with certain tools and resources and to make informed decisions about the ongoing development and sustainability of the tutorial and its integration with LFS course content. Though the LMS context has since changed, the embedded survey was the first step toward identifying how—and if—students were using the tutorial, how they felt about the information provided, and what rate of attrition was within the tutorial. While a single module couldn’t answer those questions completely, it was an important analytical tool for the library and LFS faculty to see aggregate data on information literacy skills and tutorial engagement across classes.

Design

Choose Your Own Adventure-style content is inherently nonlinear. Participants expect the choices they make to be reflected in the content they are shown, which means there are likely to be outcomes they never see and have no way of accessing. In order to ensure that each student saw relatively consistent core content pages, we had several storylines where each path converges with the central storyline. This is called “delayed branching” or a “branch and bottleneck” structure, and it significantly reduces the volume and complexity of content development (Ashwell, 2015; Fabulich, 2011). However, for assessment, it does mean data analysis must incorporate information about the choices selected in addition to the destinations reached. To an instructor, identifying stumbling blocks and “best of” choices is just as important as knowing that students read a particular page of content. Unused selections can also indicate a need for restructuring the material or changing the emphasis of the instruction.

![Figure 1. Twine overview of “Choose Your Own Research Adventure” showing the branch and bottleneck structure.](image-url)
The branch and bottleneck structure also makes it possible to embed feedback or rationales into choices. Because multiple choices can lead to the same place, students can select their reason for trusting an imaginary source from a range of possible answers, or offer feedback in narrative progression choices such as “I’m ready for the next step,” “I’m ready for the next step— and also I love this,” or “this is going too slow - please move on to the next step.” As the CYOA module was an experiment, the ability to assess student familiarity with core information literacy concepts and to see how students responded to the content as they were encountering it led to more nuanced understanding of student preferences than a single question where they provide their final feedback. This allowed the team make an informed decision about whether it was worth supporting such a complex module going forward.

Using the branch and bottleneck structure for embedded feedback does have limitations, however. Asking whether students wanted additional development in various areas of the module was less successful than embedding rationales. Since the project was largely exploratory, the team had no idea whether students would take a direct path through the content or want to explore and ask questions. The tutorial essentially tried to split the difference, providing a few winding paths for students to explore in some areas, and visibly cutting off additional exploration in others. In the cut off paths, the text acknowledges that the content is “still in progress” or “under development” and, as above, allows students to select between choices to go back to the main content or request additional development in that area. Though students often encouraged additional development, it was possible for students to hit all of these unfinished edges, and one student offered the rebuke that “It was really distracting to get three messages that ‘this tutorial isn’t finished.’ I am not sure why we would be asked to do something that isn’t even complete yet.”

The tutorial module was conceptualized and built in summer 2015, over about 3 months, with analysis, visualization, and reporting lasting an additional term. While there was no budget specifically for tools or development, the graduate student involved with the project was funded through the TLEF grant and, as part of the library’s portion of the grant, was dedicated to the tutorial redesign for the duration of the project.

While the project was resource intensive, creating nonlinear content for instructional purposes isn’t necessarily difficult. A program like Twine can allow you to easily draft story points and branching paths and offers a “proofreading mode” to allow you to review all of the content in one view. However, for assessment purposes, Twine does not capture data usage data on its content, nor can it administer the access restrictions that would be necessary to separate out individual classes or groups of students. Although Twine did not meet UBC’s initial project scope for these reasons, when the LFS faculty moved its asynchronous learning content away from Connect, the library switched over to a Twine-hosted module after the initial pilot year due to its flexibility in adapting and revising nonlinear content. If there is no need to capture usage data or the CYOA-style content is designed only as a teaching tool, Twine is probably the easiest tool for drafting nonlinear content. In order to gain insight into student choices, however, a survey platform—or something similar—that passively collects usage data will be necessary.

Within a survey platform, the CYOA style is achieved with skip logic that makes content appear and disappear based on user input. Developing branching rules is probably the most difficult and least sustainable part of the project. They are prone to breaking, as adding and removing content can lead to missing references and syntax errors that are difficult to catch unless you select every answer down every path of the tutorial. The Woodward Library team sent the survey to student employees working at the desk and asked them let the team know if they could catch any errors or breaks in narrative flow.

Any data extracted from CYOA-style module will reflect the complexity of the content. Usage data will have significant gaps from any unchosen paths and selections, as shown in Figure 2 below. The simpler your tutorial, the simpler your data will be to work with—but you’ll get much less naturalistic data from student choices. Without a framework for CYOA analysis or a visualization model, librarians and instructors must rely on poor reporting tools to make sense of usage patterns in an extremely complex dataset. These complexities are discussed in more detail in the Analysis section below.
Figure 2. Sample of usage data. In the blue box, different responses in the first column leads to the same content in the third because the content in the middle column allows the user to jump onto a different path. A selection of “Google” in any column indicates that the user jumped ahead to the next constriction node, as shown in the orange boxes. Selections are followed by empty cells because additional content was hidden from the user. However, null values have no bearing on whether or not the tutorial was completed.

Even with a branch and bottleneck structure, development time will be disproportionately longer than running time. The “Choose Your Own Research Adventure” content is made up of 42 survey questions/content pages, 116 possible selections, and 59 rules governing when and where information appears. Though some classes spent an average of 14 minutes exploring the content, others finished with a class average of under 2 minutes. To combat this, Heather Newcomer developed an in-person CYOA-style tutorial with more content on fewer pages, only giving students one or two choices throughout the session to keep everyone on the same page. There is an inherent tension between the desire for efficient development and the desire to build in comprehensive choices and paths for students.

Analysis

As an assessment tool, this tutorial was primarily designed to see aggregate performance of students across course and course level. The team also wanted to assess the effectiveness of the tutorial itself. The “Choose Your Own Research Adventure” module was a gamification experiment that took a lot of development work and customization, and the team was looking for clear indications of success before continuing further. The decisions they needed to make were based on questions that fell into 5 broad categories:

1. **Student use of the tutorial/reach and rate of attrition.** Are students accessing the content? How many and in which classes? Where do students tend to lose interest and what is the retention rate for this module?

2. **Student opinion on CYOA format.** Do students like this type of tutorial? Should we invest in additional development, continue this as a pilot, or remove it entirely? Are any sections more effective than others?

3. **Patterns of use by different classes of students.** Are students reporting differences in research strategies between undergraduate and graduate degrees? If so, are they different enough to require separate instructional content?

4. **Understanding of student research methods.** Are students reporting good research habits? Do we need to emphasize certain skills more—or de-emphasize concepts they’ve already mastered? Where are the information gaps for students?

5. **Assessment impact and feasibility.** Is the information we receive worth the development effort of the CYOA format? Are there paths in the tutorial that are not being used? Where is there potential to streamline the content?
“Choose Your Own Research Adventure” was built in a traditional survey platform rather than a CYOA platform, which means the program offered no visible overview of the tutorial structure to the project team or stakeholders, no way to view possible paths through the content, and showed no logical connection between questions. Because the default reports did not support the desired analysis, finding a sensible way to answer these questions and display an overview of the content were a primary interest.

The team wanted a reporting and analysis tool that could be easily updated rather than re-invented. As part of a visualization course project, the graduate student built a tutorial dashboard in Tableau that could be updated by appending the latest data extract to a template and refreshing the data source [2]. While this operation required some familiarity with the program, UBC Library had adopted a Tableau Server license and was actively working on training staff with the program. To avoid extensive data preparation, the dashboard was built as a frame over which the data was overlaid. The data template preserves the default data structure when exporting data from the survey platform, only requiring the librarian to add three columns: a link to the frame, the course ID, and the course level. The usage results were significantly easier to update and interpret once this dashboard model was in place.

![Sample data from the three spreadsheets used to build the dashboard. Usage data (a) is linked to the visualization templates (b) and (c) through the “link” column (green boxes). The blue columns in (a) indicate fields that have to be added by hand when new usage data is added. The template for the node and link diagram (b) would be updated if the tutorial structure is modified. The template for the Sankey diagram refers to calculations in (c).](image)

The dashboard supports instructor analysis of student’s research skills with an “overview first, details on demand”-style dashboard, where the user can get a broad overview of the entire tutorial and then drill down to look at individual sections in more detail. The interactive dashboard supports filtering by student response, class level, and course code, and displays the exact number of users as well as the overall completion rate for each section.
Figure 4. Tableau analysis dashboard. Tabs navigate to different sections of the tutorial (a), which shows summary statistics and rotating comment from student feedback (b). The Sankey diagram (c) shows the decision paths made by students, while the tree structure (d) uses nodes to represent content pages and links to represent possible selections. A bar chart shows student feedback and rate of abandonment (e) and filters support narrowing results by course or type of student (f).

The team wanted to know how many students used the tutorial and how they behaved within it. Tabs across the top and large summary statistics allow users to examine the tutorial overall or to focus on different sections to look for high- and low-use paths, compare the attrition rate between different content areas, and narrow in on the specific choices students made in that section. Filters along the right and a bar chart of feedback responses allow instructors to drill down or compare groups by course ID, student level, and overall response to the content (e.g., undergraduates who loved the module). The Sankey diagram shows student decisions along different paths of the tutorial. The flows convey patterns of student use, with more frequent choices drawn proportionally larger and students leaving the content dropping off into empty space.

To provide an overview of the tutorial content and to help instructors orient within the different sections of the dashboard, a node and link tree structure in the lower left shows all possible branching paths and displays the full text of the questions and responses on hover. The tree also acts as a navigational tool, with marks highlighting the exact nodes being displayed in the Sankey diagram in each view.

Although the specific questions and development process of the dashboard may not apply in all contexts, establishing a template to analyze and interpret CYOA data will make the process significantly easier and the project much more sustainable. The content also becomes much easier to discuss, even while it is still in development, when there is a visible overview of the content and not merely the abstracted complexity of nonlinear narrative.

Findings

The tutorial was distributed to eight LFS classes, three at the graduate level and five at the undergraduate level. Each class had an identical copy of the module embedded through a custom link that allowed the team to track aggregate response rates by class. A more generic link was also embedded in a public copy of the course and in several UBC LibGuides accessible to both students and the public. The first year of the pilot deployment received responses from 279 students and nearly 400 people overall. 147 students completed the entire module, though the response rates were not representative across classes which made it difficult to make meaningful comparisons between groups as originally intended. However, it did support
broad summaries of student engagement and calculations of the response rates and number of respondents by class and student category.

Students who engaged in the content were willing and excited to explore non-mandatory paths and expressed a high amount of interest in the CYOA format. Of the completed responses, 78% expressed a preference for the CYOA content over more traditional/linear content, and nearly 60% reported a high rate of engagement—selecting choices that indicated they “loved” the module or expressing a desire for additional tutorials in this format [3]. Only 6 students (2%) indicated a strong dislike of the CYOA format, with an additional 4 saying they hated it but didn’t think they would like anything else better.

Informal conversations with student testers and team members indicated that, while CYOA results can provide some insights, they should also be treated with some degree of caution and skepticism. Many people, team members included, reported selecting “every wrong answer” just to see what would happen; others followed a more circuitous route because they found it humorous, or enjoyed being perverse, or were curious how far it would go. Additionally, there is no established connection between choices in a CYOA environment and actual student behavior. These patterns, even analyzed in aggregate, may have little bearing on actual student research behavior. As researcher observes, “one of the recognized problems of evaluating interactive stories is that the conclusions may not be applicable beyond the texts being analyzed” (Andrews, 2014). However, tension between reported behavior and actual behavior is openly acknowledged with survey methodology generally. While the data has some limitations, additional findings were centered around three major themes.

Naturalistic insight into student behavior and decision-making

One key finding was the value of seeing student choices at every stage of the process. When large numbers of students selected one information source over another, expressed confidence or uncertainty about a skill, or self-reported the rationale for their decisions, librarians get a better understanding of student research habits, and an opportunity to tweak the content in response to student behaviors and feedback. Some of the specific insights we found from the pilot year were copied below:

- The majority (57%) of LFS students turned to Google as their first step in the research process, with 36% turning to library search, and 6% heading to their syllabus.

- Students tended to prefer results with journal articles (31%) and encyclopedias (35%) over Wikipedia (19%). Only one person selected “Google Images” as their first stop after a Google search.

- Of those who chose to look at secondary or tertiary sources, 47% wanted to verify the information with another source. 14% trusted the information enough to move on with their research, and 8%—13 students total—indicated that they trusted the source because it said “Encyclopedia”.

Responsive content that gives feedback to librarians at the point of need

Students had opportunities to express interest in new tools or explore familiar ones more in-depth. While some students indicated that the information was valuable and chose to continue exploring, others indicated that the volume of information was getting overwhelming. The flexible paths allow those students to skip past the optional content to the end, reducing information overload. It also gave librarians a sense of where this overload occurred, allowing them to restructure the distribution of information or provide more static content, such as a handout, that could be absorbed later.

- Students expressed a lot of curiosity and interest, even when they had been shown familiar content. Of the 45% of students who were familiar with the initial google overview (which featured phrase searching and basic Boolean operations), 75% opted in to additional google content “to see if there’s something else I don’t know”.

- Of those, who saw the additional content, 67% students indicated that the content was either “Amazing” or worth writing down. 27% indicated that the information was getting a little overwhelming.

Low-impact assessment that increases student engagement

Because the tutorials were built in a survey platform, no additional assessment was needed for students to provide feedback or test their learning, and instructors and librarians were able to see how and if engagement and satisfaction shifted throughout the module.
• Average time to complete tutorial was just under 6 minutes and the largest point of disengagement was immediately after the first question, with 18% of participants leaving after their first click. Because there was such a high volume of positive feedback, these results imply that students who disliked the gamified content were able to quickly identify their lack of interest and leave the module before investing much time, meeting the team’s goal to not significantly increase the burden on students.

• Data was collected passively in the LMS system in which they were required to participate. Feedback was embedded in choice selection and responses, with no quizzing or separate surveys required.

Conclusion

For the LFS team, the CYOA format was chosen because it was nonintrusive, largely enjoyable to students, and flexible—giving students additional help when desired and skipping ahead to more relevant content when it was not. Building the tutorial in a survey platform provided rich insight into the decision-making of students during the research process, which allowed the team to revise the tutorial and switch over to a more sustainable tool going forward. CYOA-style gamification provides a less invasive and more informative alternative to pre- and post-testing, which merely tests recall of information, puts a significant time and effort burden on students, and offers limited utility to the librarians responsible for developing and maintaining the content.

As a teaching resource, nonlinear content allows students to drive their information seeking, allowing them to request additional explanations for content they are unclear about, or skip past content with which they are more familiar. It can also allow students to experiment and test boundaries—providing a structured environment to practice core skills or techniques that offers immediate feedback on errors and answers that are imperfect but not incorrect. As an assessment method, CYOA-style content gives librarians and instructors insight into the choices students make in a naturalistic scenario. If the content provides possible explanations for an answer, it can also show students’ rationale for their choices, leading to more targeted assignment or tutorial design, and offers detailed feedback on the concepts that are unclear and not sticking with students.

A forced-path branching narrative will never be as natural as observational research methods, but this gamified assessment strikes a balance between the resource-intensive observational and authentic assessment methods and rudimentary pre- and post-testing methods. CYOA-style information literacy assessment addresses a gap between fixed-choice tests, which does not allow students to demonstrate their process or critical thinking, and the heavy lifting of observational studies or the rubric development, norming, and grading that are required to assesses authentic student artifacts.

For librarians, CYOA-style instruction can be incorporated as a module in traditional information literacy tutorials or be provided as standalone instructional content. Both offer a playful and engaging way to teach and assess information literacy. Building the tutorial in a survey platform that natively provides usage information means that data collection requires no additional effort from users and offers rich insight into student research habits, decision-making, and engagement with the tutorial content itself. Developing and analyzing this content can be challenging and resource-intensive, but in contexts where such an approach makes sense, CYOA-style content can revitalize more traditional instruction and provide ongoing, sustainable feedback for information literacy programs.

Thinking about starting your own CYOA tutorial?

1. Consider what you are looking for from CYOA content: are you interested in gamification of traditional library content? Are you hoping to collect assessment data?

2. Think about the resources you have available: can you use a survey platform? Can you embed content or does your content need to be built within a certain system or program?

3. Identify the key goals and priorities in your context. What are you hoping to learn from this project? Shared understanding of the project goals will help you identify the right tools and platforms for your use case and generate questions to help analyze your results.

4. Get inspired. Read about developing CYOA content and find examples of CYOA stories you love [4].
Notes


[2] For details about this process and the design choices for the dashboard visualizations and interactivity, please see Faber, 2015, the final paper for the course. The live dashboard is available at https://public.tableau.com/profile/visualibrarian#!/vizhome/LFSCYOADashboard/Overview.

[3] Reporting accurate percentages for CYOA content is difficult. Calculating results as the percent of total respondents may misrepresent the volume, as many of them may not have seen the question in the first place. In this section, I report the percent of people who made decisions that were available to them – excluding people who selected other paths or dropped out of the tutorial previously.

[4] The Interactive Fiction Competition and Choice Of games offer a variety of popular CYOA narratives, while CYOA design considerations are outlined in Fabulich, 2010 and Moore, 2013.

References


Fraser, I., 2015. Introduction to the library: a day in the city. Presentation at Univ. Winnipeg.


Initial discussions of a “diversity research project” at the University of Maryland Libraries (UML) occurred in 1999 and led to the development of the first version of the ClimateQUAL® protocol—originally called the “Organizational Climate and Diversity Assessment” (OCDA©). For my part, I owe the staff of UML, during my dozen years as Dean of Libraries, a profound debt of gratitude. So many worked in large and small ways to be sure that the OCDA was a success and that we learned from it how to improve the organizational health of the libraries and as a result our information services to the university community. At the outset, I should mention that this paper can only provide a sketch of the overall findings of the ClimateQUAL research and that a full discussion will appear in a book this Fall published by Rowman and Littlefield—ClimateQUAL: Advancing Organizational Health, Leadership and Diversity in the Service of Libraries.

The ClimateQUAL project has resulted in a robust dataset that has already shown its value for a deeper understanding of the “organizational health” of participating libraries and the impact that it has on service delivery. On the other hand, in 2000, assisted by the Industrial Psychology Program at the University of Maryland, we were
only seeking to improve the organizational climate, particularly focused on diversity issues. We were not thinking about a multi-institutional and, now, international research project. In time, we came to believe that other academic libraries could benefit from our learning. By 2007, we had turned our attention to testing the protocol with five other Association of Research Libraries (ARL) member libraries and handing the long-term management of the protocol to the ARL for general use.

In 2008 I moved to ARL as Executive Director, but we continued to cooperate with the University of Maryland Industrial Psychology program, which participated fully in further developments. Our learning at ARL about the design, automation, evolution, and refinement of the protocol is, in itself, a case study of the value that accrues from undertaking such a large and long-term project. The early research findings of the OCDA, and subsequently the ClimateQUAL project, advanced the research in substantive ways that today allow multiple perspectives on the organizational health and climates of libraries. And as the protocol matured, we began to see that the resultant large data-set gave us an opportunity for deeper learning, particularly given the IT platform that was developed at ARL to support it. ClimateQUAL was incorporated into the StatsQUAL® suite of services and became the second-most used protocol service after LibQUAL+ offered to libraries by the Association.

A number of critical and important early findings deserve mention:

• Results demonstrated empirically what has been intuitively known for a long time. A healthy organization is better able to fulfill its service mission. In short, the research provides empirical evidence for the connection between organizational climate dimensions and customer satisfaction in a library setting.
• Results also indicated that conflict that exists within an organization does have a direct negative impact on customers. In short, organizational climate (that is health) has a direct and perceived impact on the service experienced by library customers.

• Another important finding was that the climate for diversity improves the way an organization operates—this was the first time that this had been shown empirically. Similarly, findings included a significant correlation between valuing diversity and the extent to which customers say they can get the information they need.

Such results encouraged us to continue the research dimension of the project. Further research based on the current data-set is the key focus of my presentation today, emphasizing 7 specific research themes. With one brief exception, I won’t talk about individual library’s experiences with ClimateQUAL, but rather will examine several themes resulting from use of the data from 54 libraries’ experience. So, this is not a presentation about what a library may expect in a local application of the protocol.

**Theme I: the Healthy Organization—Properties of ClimateQUAL Scales**

In a real sense, the development of the new concept of the healthy organization became central to our work, encompassing, as it does, the other elements of our research, particularly the various climates (notably diversity climate) and their connection with service to customers. The key elements of the research design included methodology, aggregation statistics, and validity and reliability testing. As the protocol survey evolved, different psychometric constructs were assessed. Some were discarded along with
questions that did not provide useful information. Today there are approximately 150 questions representing the nine climate dimensions, seven organizational attitude scales, and additional demographic questions.

**Figure 1: CLIMATEQUAL Scales**

<table>
<thead>
<tr>
<th>Organizational Climate Measures</th>
<th>Organizational Attitude Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate for Organizational Justice</td>
<td>Job Satisfaction</td>
</tr>
<tr>
<td>Distributive Justice</td>
<td>Organizational Commitment</td>
</tr>
<tr>
<td>Procedural Justice</td>
<td>Organizational Citizenship Behaviors</td>
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<tr>
<td>Interpersonal Justice</td>
<td>Organizational Withdrawal</td>
</tr>
<tr>
<td>Informational Justice</td>
<td>Psychological Empowerment in the Workplace</td>
</tr>
<tr>
<td>Leadership Climate</td>
<td>Task Engagement</td>
</tr>
<tr>
<td>Leader-Membership Relationship Quality</td>
<td>Work Unit Conflict</td>
</tr>
<tr>
<td>Authentic Transformational Leadership</td>
<td>Interpersonal Conflict</td>
</tr>
<tr>
<td>Climate for Deep Diversity</td>
<td>Task Conflict</td>
</tr>
<tr>
<td>Standardized Procedures</td>
<td></td>
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<tr>
<td>Valuing Diversity</td>
<td></td>
</tr>
<tr>
<td>Climate for Demographic Diversity</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
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<tr>
<td>Gender</td>
<td></td>
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<tr>
<td>Rank</td>
<td></td>
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<tr>
<td>Sexual Orientation</td>
<td></td>
</tr>
<tr>
<td>Climate for Innovation: Co-worker support</td>
<td></td>
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<tr>
<td>Climate for Continual Learning</td>
<td></td>
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<tr>
<td>Climate for Teamwork</td>
<td></td>
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<tr>
<td>Benefits of Teams</td>
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<tr>
<td>Structural Facilitation of Teamwork</td>
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<tr>
<td>Climate for Customer Service</td>
<td></td>
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<tr>
<td>Climate for Psychological Safety</td>
<td></td>
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</tbody>
</table>

There were two types of scales. We explored organizational climates—climates for distributive, procedural, interpersonal, and informational justice, team work, deep
diversity, demographic diversity, psychological safety, continual learning, and customer service. We also focused on work attitudes—job satisfaction, organizational commitment, organizational citizenship behaviors, organizational withdrawal, task engagement, psychological empowerment, leader-member exchange (LMX), authentic transformational leadership, and conflict.

To repeat, ClimateQUAL is grounded in the our findings about the theory of the healthy organization, which proposes that organizations that foster a system of climates to simultaneously support their employees and customers will be better able to meet customer needs. The correlations among the climate scales provide us with a “big picture” look at the common baseline of libraries as organizations, which is useful for individual libraries as a comparison as well as the deeper understanding of what makes a healthy organization.

The theory of the healthy organization specifies that organizations can benefit from diversity by fostering a system of climates that prioritizes a dual concern for both employees and customers (Hanges et al., 2007). By fostering climates for justice, deep and surface diversity, continual learning and innovation, psychological safety, customer service, and teamwork, organizations communicate that they value not only their customers, but also the well-being of their employees. This dual message will not only enhance customer service, but will also allow for organizations to attract and retain a talented and diverse workforce. Sending this message should enhance the breadth and diversity of an organization’s applicant base. Additionally, by promoting and managing diversity, healthy organizations will be more responsive to the changing needs of their diverse client base.
Theme II—Leadership Matters—The ClimateQUAL® Case

The ClimateQUAL project provided an opportunity to advance our understanding of library and information science leadership by systematically studying its effects in the larger context of general studies of leadership. To say that leadership and its impact on organizations have been deeply researched is gross understatement. We know that it is tremendous advantage for organizations to align climates and cultures with critical organizational goals (e.g., productivity, service, safety, diversity). Climate and culture are two terms that are frequently used interchangeably, because they both refer to shared employee interpretations of their work environment (Ehrhart, Schneider and Macey 2014, 66-67, 296-97). Given the importance of climate and culture, it is reasonable to ask where they come from in the first place and how they can be shaped. Several researchers have pointed out the role of the CEO/founder and their top management team (TMT) as being critical for creating, sustaining, and changing organizational climates and culture (Schein, 2010, 219-58; Schneider, 1987).

Leadership research is fairly well advanced in business, psychology, and sociological literatures. Indeed, Day and Antonakis (2012, 4) stated that the accumulated knowledge regarding leadership in the broader scientific literature “now allows us to explain the nature (including the biological bases) of leadership, its antecedents, and consequences with some degree of confidence.” By contrast, the information published in the library and information science literature does not fully exploit the current state of knowledge regarding leadership in other fields.

Despite a few instances of empirical research, the professional LIS leadership literature, research and training have remained essentially hortatory. By placing LIS
research in the framework of the broader leadership research corpus, we provide a framework for demonstrating the importance of what we have learned about library leadership specifically. So, the case for placing the ClimateQUAL results in the larger literature is demonstrably strong, particularly given the void of empirical research in the LIS literature that our work begins to fill. It was very fortunate that from an early time in ClimateQUAL development, we included questions about “authentic and transformational leadership” and “leadership management exchange” (LMX). These two concepts have emerged as central to the modern study of leadership. We hypothesized that library deans or executive officers who are rated higher in terms of authentic leadership and LMX quality would be more likely to have employees who internalize the executive officer’s vision and goals. Thus, library executives who stress the importance of diversity, fairness, and/or innovation would be more likely to have many employees who internalize these goals and these employees influence the rest of the library staff regarding the importance of such goals.

As predicted by both the authentic leadership and LMX literatures, we found strong relationships between library leadership and the climate perceptions of staff members. In particular, authentic leaders and leaders with higher average LMX quality run libraries with stronger climates for fairness, diversity, psychological safety, and continual learning. We also explored the attitudes of the library staff members and found that authentic leadership has a strong positive impact on the satisfaction, commitment and psychological empowerment of staff members. It is also associated with reduced task conflict and reductions in thoughts about quitting the organization. In summary, our results demonstrated that these leadership styles are critical for libraries in both negative
and positive directions. Authentic transformational leadership is highly relevant for ClimateQUAL’s healthy organization theory.

**Theme III: Organizational Climate and Customer Service—The ClimateQUAL® and LibQUAL+® Connection**

One of the most important research objectives for ClimateQUAL was to determine how the other climates affected library service. Questions about service climate are included in the protocol. From these we learned we could assess how staff viewed the service climate interacted with other climates. So, we knew what the staff of said about service attitudes in their own library. Given that libraries are historically credited with a “service attitude,” it is really not surprising that library staff might say that they have a “good climate” for service. We needed an external measure of climate for service that drew on other demographic groups in order to improve our confidence that this finding was sound.

Our discussions came to the obvious choice of LibQUAL+. What was needed was a group of libraries that had administered both protocols so that we could test the hypothesis that ClimateQUAL measures of climate for service would be validated by LibQUAL+. In the early years of ClimateQUAL, we investigated a handful of libraries that had employed both and found a high level of congruence between the opinions of library staff about climate for service with those of library customers. Our current research extends and confirms this initial finding, exploring this topic in depth with the full data set. The first step in ascertaining the existence and strength of the connections between the two protocols was identifying libraries that had run both instruments—there were 43 in all that comprised 49,867 respondents to the LibQUAL+ survey and 6,149
respondents to the ClimateQUAL survey. The research demonstrates that the two protocols are related, with the primary driver being the LibQUAL+ “Customer Service” dimension showing that there is, indeed, a positive correlation between internal climate for service as perceived by staff and external customer perceptions of library service. The correlations between the LibQUAL+ dimensions and the other ClimateQUAL scales, such as the Climate for Demographic Diversity-Rank, Organizational Commitment, and Organizational Climate for Justice, are explored fully in our forthcoming work. An early finding of our research is worth emphasizing here—a positive climate for diversity leads to a positive climate for service. As important as this early finding was, it has been reinforced in the current research—it is validated because customers responding to the LibQUAL+ survey tell us that the climate for service is good while at the same time the ClimateQUAL survey of employees reflects a positive diversity climate. Put simply, good customer service is correlated with a good climate for diversity. It may seem that this is simply intuitive, but understanding that organizational health and climate for diversity are so strongly correlated with good service provision should lead to more effort focused on staff. Put another way, efforts at rearranging the organizational structures supporting service to users may not be the place to start when trying to improve the quality of that service. At least reorganizations of service should be accompanied by this understanding.

**Theme IV: Improvement Strategies and Organizational Change Using ClimateQUAL®**

Probably the most important challenge for any library that implements ClimateQUAL is analyzing the rich data that results and developing a plan of action for
improving the health of the organization. Our experience with ClimateQUAL partner libraries has been that the effort of protocol administration is dwarfed by that of following up with plans for improvement. But there are strategies for creating a plan—one that addresses how to review the survey results, identifies areas for improvement, develops the tailored strategies for creating change, and then presents ideas for specific strategies that are practical. Therein lies the benefit of ClimateQUAL in the local setting.

Early on at the University of Maryland, we determined to use a combination of systems thinking and organizational development processes to interpret and respond to the ClimateQUAL report. The ClimateQUAL report is detailed and includes multiple tables that provide a variety of ways of looking at the data. Starting off with a plan for the review was seen as essential.

The analysis phase is followed by work to develop improvement strategies. A range of organizational development tools can be used to diagnose issues or support improvement strategies in an effort to increase understanding of a library’s climate and culture. The local environment should strongly condition the approach. For instance, even with the large amount of data ClimateQUAL provides, some libraries have made additional surveys a critical part of their process. Equally important, the ClimateQUAL “community” has grown over the years, and ARL provides support for sharing information among participants through meetings and the Website. Developing and monitoring the health of the organization should be a key strategy of every library, indeed of any organization. All library employees should be encouraged to contribute to policies, procedures, and practices to maintain a healthy organization. But the involvement of the
leadership of the library throughout is critical for ensuring that mechanisms are in place, for without this leadership, the organization will not be as successful as it could be.

**Theme V: Longitudinal Change Leads to Healthy Environments**

This leads us to ask about the longitudinal changes in climate scales of libraries that have applied ClimateQUAL more than once. Here we had only a small sample of 7 libraries to draw on, but this does begin to give us a picture of how responding to ClimateQUAL results can lead to a healthier organization. Given the effort that is required of a library to use ClimateQUAL, this is good news. For the six-year time frame of this study (2008-2014) a total of 17 scales were a part of the survey instrument and thus available for this analysis. A key part of this research involved interviews with the library’s director and staff. A variety of strategies were employed to implement the protocol. Similarly, local conditions led to different strategies for sharing the ClimateQUAL report and data. More specifically, we analyzed 12 scales for distributive justice, procedural justice, interpersonal justice, both deep and demographic diversity, authentic leadership, leader-member-relationship, innovation, continual learning, job satisfaction, task engagement, and teamwork to see how they changed over time in response to improvement strategies. While we cannot attribute causality or statistical correlation, we note that efforts on general themes positively affected general direction of underlying scales.

**Theme VI: Differences and Equity: A Reflective Analysis of ClimateQUAL® Demographics and Organizational Climate**

As I have already emphasized, a core purpose of the ClimateQUAL survey is to help libraries understand their organizational climate and matters concerning diversity.
and organizational effectiveness. Our analysis places in high relief how specific demographic groups differ in large and small ways in their view of the dimensions of climate in their libraries. This analysis of differing group opinion helps to balance the statistical effect of central tendency that can obscure distinct group differences and thus provides us with a deeper analysis of equity and differences among demographic groups. Put another way, we examined the relationship between demographic diversity and organizational climate as a function of the demographic composition of the groups. The demographic questions asked in the survey concern race and ethnicity, rank, biological sex, religious affiliation, sexual orientation, and disability status.

Statistical analysis of demographic group differences in ClimateQUAL averages is a rich discussion, but one that would take more time than we have here. However, it can be said in summary that there is a small but statistically significant effect for five or the six of the demographic categories: Distributive Justice, a dimension of Climate for Justice, Climate for Demographic Diversity: Rank, Climate for Continual Learning, Organizational Commitment, and Team Psychological Empowerment in the Workplace. The healthy organization theory that underlies the ClimateQUAL survey predicts that both types of diversity are needed for groups to be effective in the long run. Surface and deep diversity should be related. After all, people who have different surface characteristics (demographic characteristics such as race, gender, etc.) probably have different backgrounds and personal experiences that have affected their values, beliefs, and interests that is deep diversity (personal characteristics such as values, interests, competencies, personality, etc.). Thus, the group surface or demographic diversity probably results in some deep diversity within the group. However, the connection
between surface and deep diversity is not perfect and thus, it makes sense to measure both types as we have. Highlighting the relationships between the demographic groups and the scales in the ClimateQUAL survey is a positive first step in helping libraries better understand the experiences of their staff as well as the library’s climate for diversity. Demographic group membership emphatically makes a difference in perceptions of climate; and this knowledge is an important tool for libraries dedicated to increasing the health of their organizations so that they can continue to make a positive, lasting impact on the communities they serve.

**Theme VII: ClimateQual® in the UK: Applying the Protocol in a Different Culture**

Thus far, I have discussed ClimateQUAL drawing solely on the data from libraries in the US and Canada. As many in this audience will know, four libraries in the United Kingdom (UK) have test-piloted ClimateQUAL and their perspective is at once expansive and local—expansive in the sense that it places ClimateQUAL in a broader international setting and local in providing us a detailed view of how one UK library implemented the protocol. In a sense, this is the perfect finish for this discussion because the case study of York University Library illustrates the kind of thought and reaction that is required at each participating library about “what’s next” once the ClimateQUAL report is received. This strongly demonstrates that ClimateQUAL can be a good fit with other methodologies for analyzing and resolving problems in organizational health. None of the other themes of this paper nor the forthcoming book gives that vital perspective, focused as they are on research and analysis at a meta-level. Key points learned in the York study:

- ClimateQUAL used at sensitive time near the end of major refurbishment
• ClimateQUAL linked to new University Information Strategy
• Other staff survey evidence available for comparison
• 95% response rate
• High number of comments, many with emotional content
• Improvement plan involved a new people strategy and structure
• Succeeding investigations showed substantial improvements

What is equally interesting is that, time and again, we have seen that only a library, in which the leadership is committed to this kind of follow-on effort, will get full benefit from ClimateQUAL. In essence, administering the protocol is just the tip of the iceberg of real improvement.

Finally, I should offer a brief discussion of the entire UK context, cohort, and pilot project results.
US/Canada, UK and York University Climate Means

Note: used with permission of Stephen Town

The adaptation of the survey to a different cultural context with different management norms and terminology is a good textbook for both keeping the survey faithful to its roots and modifying it to meet a different context. It is worth mentioning here that the use of the scales in the UK proved statistically valid. A summary of results of the four UK libraries are provided by this figure. It shows the mean results of the UK cohort against the mean results of the thirty-five North American participants to 2012, and those of University of York. This radar graph reassuringly demonstrates an approximately consistent pattern of strengths and weaknesses across all participants, indicating both some general truths about libraries, and we can infer that the instrument is being interpreted in the same way in both the UK and North America.
There are a few obvious variations in the results between the UK and North America. One of the largest difference-in-mean scores is for Team Psychological Empowerment. Whether this is reflective of different team management approaches in North America that generate better self-esteem around personal contribution is worth exploring further. However the UK mean for Team Benefit is higher. The Organizational Withdrawal score is by contrast lower UK, although workforce mobility may be more common due to geographical scale, perhaps explaining this difference. Diversity scores are slightly better in the UK, but this may be because there is less of it in the workforce. Job Satisfaction and some aspects of Justice appear poorer in the UK. These are only a few of the findings I have time to mention, but they are indicative and reflect our deeper analysis.

In closing, I would be remiss if I did not give due credit to colleagues who have been involved in the research I have synopsized today. In non-alpha order they are:

- **Juliet R. Aiken**, Ph.D., Program Director of and a Clinical Assistant Professor, University of Maryland
- **Sue Baughman**, Deputy Executive Director, Association of Research Libraries
- **Paul J. Hanges**, Ph.D., Professor of Industrial Psychology, University of Maryland
- **Martha Kyrillidou**, Ph.D., Principal at QualityMetrics, LLC
- **Shaneka Morris**, Survey Coordinator and Data Analyst, Association of Research Libraries
• Mark A. Puente, Director of Diversity Programs, Association of Research Libraries
• Gary B. Roebuck, Director of Administration and Operations, Association of Research Libraries
• Stephen Town, most recently the Director of Information and University Librarian at the University of York, UK

References


Communicating Library Value through ‘Grants to States’ Evaluation

Martha Kyrillidou
QualityMetrics, LLC

Original submission title was shortened to comply with Emerald guidelines – it was as follows: Communicating Library Value through ‘Grants to States’ Planning and Evaluation: Five-Year Library Services and Technology Act (LSTA) Evaluation

Acknowledgement:
Funding for this work has been provided by the Institute of Museum and Library Services

Abstract
Purpose
The purpose of this paper is to describe major findings surfacing from the evaluation and planning activities of State Library Administrative Agencies (SLAAs) through the ‘Grants to States’ program administered in the USA. The Library Services and Construction Act (LSTA) is one of the major funding programs managed by the Institute of Museum and Library Services (IMLS) and the Grants to States Program is one of its largest programs. The LSTA (US Code 20) requires that every five years an independent evaluator reviews the strategic plans and objectives achieved over the last five year period and provides an assessment of the impact federal funds have on state supported library activities. Through the evaluation work done across 21 states in 2016-2017, we highlight some of the major threats and opportunities libraries face when communicating their value and developing future plans.

Design, methodology or approach
The evaluation studies that took place assessing 2013-2017 strategic planning activities for SLAAs deployed a mixed methods design, balancing qualitative and quantitative methods, observation, in person and virtual approaches. The evaluators brought in depth library assessment experience in the evaluation process.

Findings
We found that a number of critical focal areas are posing major opportunities for libraries and their futures and are accompanied by threats as well. Areas of important focus for library development include: Lifelong learning, literacy, information access, capacity building, and civic engagement. Noteworthy examples of exemplary projects in these areas are highlighted as well as what the
evaluators see as some major threats that need to be considered carefully by library leadership in future years.

Research or practical limitations or implications (as applicable)

Evaluation studies have inherent limitations in them as they balanced practical considerations with aspirational methodological demands. This study is limited in generalizability across 21 different SLAAs in the USA. The concepts explored, the opportunities and the threats library leadership needs to examine have global and generalizable dimensions across different countries and cultural contexts.

Conclusions

Lifelong learning, literacy, information access, library capacity building, and civic engagement are fundamental directions for libraries to consider and grow in future years. Identifying and sharing best practices is more critical across library and other cultural organization sectors than ever before.

Originality and value of the proposal

Despite the rich evaluative research studies taking place at each state in the USA, there has been little effort to synthesize these studies across different state boundaries in the past. This paper is unique in that we rarely have opportunities to scale evaluation research across geographic boundaries and identify opportunities and threats, best practices and thematic focal areas for charting future directions. The Grants to States planning and evaluation cycle is taking place once every five years and most library evaluators have not publicized their evaluation work beyond the report submissions to IMLS. Greater awareness of these evaluation studies offer the possibility of scaling the approach across collaborators, researchers, and library leaders.
Purpose
The purpose of this paper is to describe major findings surfacing from the evaluation and planning activities of State Library Administrative Agencies (SLAAs) through the ‘Grants to States’ program administered in the USA. The Library Services and Construction Act (LSTA) is one of the major funding programs managed by the Institute of Museum and Library Services (IMLS) and the Grants to States Program is one of its largest programs. The LSTA (US Code 20) requires that every five years an independent evaluator reviews the strategic plans and objectives achieved over the last five-year period and provides an assessment of the impact federal funds have on state supported library activities. Through the evaluation work done across more than 20 states in 2016-2017, we highlight the Measuring Success Focal Areas and Intents Framework and some of the major threats and opportunities libraries face when communicating their value and developing future plans.

Design, methodology or approach

QualityMetrics Mixed-Methods Approach
QualityMetrics, LLC, a library research management and consulting firm established in 2016 with the purpose of helping libraries achieve higher levels of performance. The establishment of this new R&D enterprise coincided with the year when State Library Administrative Agencies (SLAAs) are required to hire an external evaluator to offer an independent assessment of the implementation of their Five-Year LSTA Plan. QualityMetrics responded to state library agencies’ competitive request for proposals and secured contracts with 21 different state library agencies between August 2016 and March 2017. As a result of this work, the author submitted 21 evaluation reports to SLAAs and to IMLS. March 30, 2017 is the deadline for submitting such said reports.

The evaluation studies that took place assessing 2013-2017 strategic plans for SLAAs deployed a mixed methods design, balancing qualitative and quantitative methods, observation, in person and virtual approaches. The evaluators brought in depth library assessment experience in the evaluation process both as researchers and practitioners.

IMLS Requirements
IMLS requires State Library Administrative Agencies (SLAAs) to “independently evaluate, and report to IMLS regarding the activities assisted prior to the end of the 5-year plan.” This is an opportunity to measure progress in meeting the targets set in the approved five-year plan and is designed to help states to make effective resource allocation decisions in the upcoming five year plans.
IMLS provides guidance in the evaluation process by providing a core set of research questions that are designed to highlight effective practices, identify processes at work in implementing the activities of the plan, including the use of performance based measurement in planning, policy making and administration, and develop key findings and recommendations from evaluating the past five-years for inclusion in the next five-year planning period. This is an opportunity to measure progress in meeting the targets set in the approved five-year plan and is designed to help states make effective resource allocation decisions in their upcoming five-year plans.

There are three sets of questions in the most recently issued *Guidelines for IMLS Grants to States Five-Year Evaluation* (see Figure 1).

**Figure 1: Research Questions included in the Guidelines for IMLS Grants to States Five-Year Evaluation**

**A. Retrospective Questions**

A-1. To what extent did your Five-Year Plan activities make progress towards each goal? Where progress was not achieved as anticipated, discuss what factors (e.g., staffing, budget, over-ambitious goals, partners) contributed?

- Organize findings around each goal of the state’s 2013-2017 Five-Year Plan
- Categorize each goal as either 1) achieved, 2) partly achieved, or 3) not achieved

A-2. To what extent did your Five-Year Plan activities achieve results that address national priorities associated with the Measuring Success focal areas and their corresponding intents? See Appendix 1 for a list of focal areas and their intents

A-3. Did any of the following groups represent a substantial focus for your Five-Year Plan activities? (Yes/No)

- Library workforce (current and future)
- Individuals living below the poverty line
- Individuals that are unemployed/underemployed
- Ethnic or minority populations
- Immigrants/refugees
- Individuals with disabilities
- Individuals with limited functional literacy or information skills
- Families
- Children (aged 0-5)
- School-aged youth (aged 6-17)

For the purposes of this question, a substantial focus would represent at least ten percent of the total amount of resources committed by the overall plan across multiple years. For those who answer Yes to any of the above groups, please discuss to what extent each group was reached.

**B. Process Questions**
B-1. How have you used data from the old and new State Program Report (SPR) and elsewhere to guide activities included in the Five-Year Plan?
B-2. Specify any changes you made to the Five-Year Plan, and why this occurred.
B-3. How and with whom have you shared data from the old and new SPR and from other evaluation resources?

C. Methodology Questions
C-1. Identify how you implemented an independent Five-Year Evaluation using the criteria described in the section of this guidance document called Selection of Evaluators.
C-2. Describe the types of statistical and qualitative methods (including administrative records) used in conducting the Five-Year Evaluation. Assess their validity and reliability.
C-3. Describe the stakeholders involved in the various stages of the Five-Year Evaluation and how you engaged them.
C-4. Discuss how you will share the key findings and recommendations with others.

Evaluation Strategies

One key aspect of the way the Five-Year Evaluation is designed is that it needs to take place before the five years are completed. So, for example, we are evaluating funding and projects for 2013-2017 but we are doing the evaluation starting midyear in 2016, that is three and half years into the planning period we are evaluating. As a result, we have only three years of data in our hands (2013-2015) and by the time we submit the evaluation in March 2017, we are receiving information about the fourth year’s performance. So, evaluators are called upon to serve a judgement not only on what has taken place but also projecting what can be accomplished in some ways by the end of the 2017. So, the concept of momentum and institutional capacity is a very important concept in the LSTA Five-year evaluation as judgements regarding momentum and institutional capacity do influence the evaluation results.

Another interesting aspect of the Five-year evaluation process is that the fifth year of the Five-Year period covered by the Grants to States program never gets evaluated based on actual data submitted. Even though this is the case, as evaluators we asked that agencies provide data for FY 2012, partly to gain a sense of momentum and capacity and partly so that we do indeed look into a longer set of data though not including 2012 in our final reporting.

As part of the annual reporting obligations state agencies have to report programmatic progress on the funds expended. So one of the key sources of evidence we use is what is known as the annual State Program Reports (SPRs), the project reports submitted to IMLS.
every years. These reports provide detailed financial information, activities and documented outcomes for many of the projects.

The administrative data get supplemented with interviews, surveys and focus groups. In our approached we initiated the projects with a phone call interview of the leadership team including the LSTA coordinator for the agency, followed by an in person site visit, onsite focus groups and interviews, virtual focus groups and interviews, an online survey of libraries regarding LSTA funded activities, and other published sources (websites, social media, etc.).

We synthesized the data in an iterative fashion starting with the initial phone call and site visits in the fall. Prior to each visit we reviewed the SPR data the SLAA provided to us. As soon as we received the SPR data we scheduled the site visit. The agency was also responsible for organizing the time and location for in person focus groups. Some were held various public library recipients of grants across the state. As a result of this rich data collection, the evaluators formed important insights on the state of libraries in the US and their accomplishments.

State Library Agencies vary significantly across the different states. Some are independent agencies, others are under the state departments of education, others under the state department of administration and yet others under other entities. The position of the state library agency often determines how they work with libraries in the state and the mix of collaborative relations they have among the different library sectors, i.e. school, pube, academic and historical societies and in some cases with museums as well. So, sensitivity to the state library context is one of the key considerations. The reports themselves reflect the evaluators research into the state by the description of the demographics and the economic and education indicators reviewed at each state. Some of this information is objective in nature and some of the evidence is rather subjective and localized.

**Findings**

We found that a number of critical focal areas are posing major opportunities for libraries in the future and are accompanied by threats as well. Areas of important focus for library development include: Lifelong learning, literacy, information access, capacity building, and civic engagement. Noteworthy examples of exemplary projects in these areas are highlighted as well as what the evaluators see as some major threats that need to be considered carefully by library leadership in future years. The list of 21 State Library Agencies and the Initial State Library Site Visit Date are listed in Figure 2. A group of states issued a group of RPP through COSLINE, the Council of State Libraries in the Northeast.

*Figure 2: List of States Where LSTA Evaluation Activities Took Place and Initial Site Visit*
Note: Italics denote participation through the COSLINE contract. COSLINE is the Council of State Libraries in the Northeast.

The findings below highlight some of the major programs that offer best practices and in addition to these states a couple of examples are offered from Oklahoma and Idaho as one of my collaborators worked on these states as well. They are organized under the IMLS Key Focal Areas: Lifelong Learning, Information Access, Institutional Capacity, Economic and Employment Developments, Human Services, and Civic Engagement.

Lifelong Learning

SLAAs often engage in sub-awards, i.e. developing their own state grant programs utilizing portion of the IMLS funds. These sub-award programs play a major role in nurturing talent and building experience in grant making and in grant applying activities. Evaluators heard many stories where an initial LSTA grant provides useful experience to libraries and libraries and when successful often followed with a further application to a national grant program.

Many sub-award programs are grouped under lifelong learning as they support activities that offer direct service to library users. Notable programs highlighted here include Massachusetts, North Carolina and Utah. The Massachusetts’ program relies on staff expertise and innovation; the agencies has staff with long held expertise in networks and preservation among other
activities and often can cultivate and nurture projects that are both strategic and innovative for the state. North Carolina’s program provides guidance, review and outcomes assessment components. Utah’s program is notable in that it does engage all types of libraries including school libraries – a sector that is not that well represented in LSTA funded activities.

Another area under Lifelong Learning is the Adult Literacy area. Here we found exemplary programs in Oklahoma and the DC Public Library. Oklahoma provides significant support to the network of non-profit literacy providers throughout OK. DC Public Library offers an extensive set of support services to many community organizations that engage in GED training through its Adult Literacy Resource Center (ALRC).

Early Literacy is another area under Lifelong Learning and notable programs include offering in Idaho and Missouri. Idaho’s Read To Me (RTM) program has changed the way in which youth services staff think about programming for young children. Evaluation of the program is exemplary. Missouri’s Racing to Read program does an excellent job of reaching families and child care providers as well as children at-risk. A spin-off is the development of a Racing to Read rubric for kids who qualify for the Library for the Blind and Physically Handicapped (LBPH) program managed by the Library of Congress.

The Information Access focal areas include licensing of electronic resources as well as support for statewide catalogs. Delaware’s effort is among the most notable ones accommodating multiple types of libraries (including all public libraries in that state); Rhode Island has worked toward a unified statewide catalog and offered a functional multi-type catalog for one year.

Regarding electronic resources, New Jersey offers a variety of resources and utilizes popular programs like Rosetta Stone. Rosetta Stone offers distinct marketing advantages due to name recognition. In Kentucky, KDLA expands access through its collaborative efforts with the Kentucky Virtual Library (KYVL) to provide access to both research oriented databases and practical online tools.

Information Access also includes digitization activities; a variety of states are supporting digitization activities and serve as discovery hubs:

- North Carolina supports the work of others in digitizing and ensures the quality of digitization efforts
- Indiana’s highly coordinated digitization efforts reach all sizes of institutions (directly and through subgrants)
- The Library of Virginia partners with Internet Archive and offers popular transcribe programs where citizens can participate in making digital text from manuscripts
- New Hampshire crawls government websites and archives state government documents
Another aspect of the Information Access focal area is support for statewide consortia; examples of such activities include LORI in Rhode Island, the Delaware Library Consurtium and Maine’s InfoNet. Last but not least, Information Access activities cover rural services such as the Books by Mail, Consulting and Area Reference and Resource Centers (ARRCs) programs in Maine, Bookmobile services in New Mexico and Utah, and Books by Mail in New Mexico.

In the Institutional Capacity focal area, we have exemplary examples from Iowa in terms of the certification and staff development programs they support and in West Virginia, the support of the statewide high speed library broadband network. Iowa has a very large number of libraries (544 public libraries) in proportion to its population and they are in diverse communities ranging from very small to very large public library systems. The state has developed a set of standards and libraries go through a certification process that defines different levels of library service. Their model provides great insights on expectations regarding service level delivery in public libraries.

Building Institutional Capacity also includes a variety of leadership training activities. For example, in Pennsylvania LSTA funding supports the Pennsylvania School Librarians Association (PSLA) and the University of Pittsburgh School Library Certification Program that work together to design and carry out one-year Emerging Leaders Academy (ELA) for Pennsylvania School Librarians. In Connecticut, the EXCITE Transformation for Libraries is a team-based training program that teaches collaboration and innovation skills.

Professional Development is another aspect of the Institutional Capacity focal area. A number of states have professional development requirements for public library staff, among them the programs in Maryland and Iowa have a long history and are well developed. The Maryland program is known as LATI: Library Associate Training Institute (LATI).

In the Economic and Employment Development, best practices worth highlighting include the Delaware Libraries Inspiration Space program that offers an environment for personal growth and has exemplary tracking and evaluation components. Similarly, in the District of Columbia, the Legal Barriers Program is a partnership with Neighborhood Legal Services Program and the DC government to provide free legal information, advice and representation to low-income residents (DC Public Library).

The Human Services focal area targets certain areas such as health and financial management which in some ways are more targeted and focused areas where Lifelong Learning, Information Access or Institutional Capacity programs can take place. Most evidence of activity in the Human Services focal area comes through sub-grants in states like Massachusetts and Pennsylvania. In Pennsylvania, the Teen Reading Lounge (TRL) is the Pennsylvania Humanities Council’s (PHC) award-winning program (Helen and Martin Schwartz Prize, 2013), which is an out-of-school education program for teens. TRL is an interactive reading and discussion program for youth ages 12 to 18 years, featuring young adult literature chosen by participating teens and hands-on experiences that bring the books to life. PHC designed the program in cooperation with library, education, and arts and humanities experts to respond to the need for quality
programming for teens that trains library staff on how to offer humanities experiences for youth.

The last focal area highlighted by IMLS is the area of Civic Engagement. A couple of programs worth highlighting include a highly popular program in the DC Public Library known as Orwellian America? Government Transparency and Personal Privacy in the Digital Age which included a partnership with local museums and is available on the YouTube in some form to this day. Worth mentioning is the way Texas implemented the popular Hardwood training; an approach to community development and partnerships that many community leaders have adopted in the recent past in the US. In Texas, Hardwood training has changed the way library staff view partnerships. Coupled with the way Texas implemented the Edge assessment, it was very interesting that the has strong civic engagement element of the Edge program was the way Texas libraries engaged with Edge which is primarily a technology assessment program. Last but not least, the Connecticut Rising to the Challenge is the first Aspen Institute that took place as a state specific effort and expands the work the Aspen Institute is carrying forward with libraries in the US.

**Practical limitations or implications (as applicable)**

Evaluation studies have inherent limitations in them as they are balancing practical considerations with aspirational methodological demands. This study is limited in generalizability across 21 different SLAAs in the USA. The concepts explored, the opportunities and the threats library leadership needs to examine have global and generalizable dimensions across different countries and cultural contexts though. The need to communicate value is universal and the LSTA Evaluation framework offers a great foundation for replication and adjustment in other geographic areas. The projects funded and identified as best practices are also worth studying more closely. For example, bookmobile services in rural and mountainous areas like Utah may serve as an exemplar for rural and mountainous areas in China and other countries. The LBPH is an exemplar program worth studying and emulating for people with visual impairments in other countries. Similarly, much can be learned from other cultural settings in return.

Some of the lessons learned during the evaluation is that for a standardized survey to occur across different states, we need to work towards this goal at the beginning of the evaluation period rather than at the end of the five year period. The group of libraries that joined the evaluation as part of the COSLINE group expressed a desire to implement a standardized survey but this was not practical given the differences among their programs. Such an effort would need to be defined early in the Five-Year Period so for agencies wishing this, the time to set it up for the 2018-2022 cycle is this coming year.
The plan goals vary a lot from state to state. Any standard survey will have to some extend take into account that goals need to have certain similarities. The IMLS Focal Areas and Intents can serve as viable standard goals if states wish to implement, let’s say, similar goals for Lifelong Learning and other areas. There is a lot of unrealized promise in the IMLS Focal Areas and intents that can be expressed with more standardization in the evaluation protocols for the new cycle.

Local context will always define success in a slightly different way and even if goals have similarities, the agencies can invest time and effort to reflect into their logic models and planning documents the hyperlocal elements. For example, the notion of developing logic models for each one of the focal areas and intents can offer a rich evaluation perspective in the future.

Implementing a baseline evaluation at the early part of the Five-Year Cycle is something that should be given serious consideration. Such an evaluation can offer useful perspectives and a measurable guide post for future success. The focal areas and intents are offering critical areas of commonality that can be explored further. For example, certain programs such as summer reading programs are widely offered and are critical services that can be the foundation for widespread scalable assessment. Project Outcome supported by ALA is starting to guide libraries in that direction and the coordinating role of the SLAAs can also boost the possibility of understanding the benefits of such an approach.

The strategic plans agencies develop can be viewed as logic models that offer a perspective that though not written in stone can be a strong foundation for understanding success. Every strategy is a logic model. Viewing your strategy and plans as a logic model allows you to evaluate, modify and refresh in a deliberate and systematic way.

The formative and summative evaluation cycles can be the building blocks of communicating value and success of library programs. The LSTA Evaluation reports move beyond descriptive statistics and are rich in context regarding outcomes. It would be important to identify 2-3 strategic goals and move beyond activity counts.

A really critical area of LSTA support are the electronic resources supported by LSTA funding. Often pricing of these resources is higher than inflation and the funding is not increasing in a similar fashion. As a result a crisis is being created and a need to understand better which electronic resources are more valuable and useful to library users. Agencies would benefit from assessing the outreach, the content and the access to the electronic resources. Usabilities studies of the interfaces need to be taking place systematically all the time. Digital asset utilization also needs to be understood at a much deeper level.

Last but not least, libraries can develop standardized ways for assessing all forms of literacy curricula. Tying such efforts to information and formal learning would be useful. There is also a
growing interest in strengthening the active learning outcomes of libraries, for example, having
more community members who are collaborators and socially engaged.

Final recommendations include the need to publicize widely the evaluation reports, to discuss
findings broadly with the community and to engage community members in participatory
activities in an effort to gain a deeper sense of the outcomes achieves though their social
engagement.

**Conclusions**
Lifelong learning, literacy, information access, library capacity building, and civic engagement
are fundamental directions for libraries to consider and grow in future years. Identifying and
sharing best practices is more critical across library and other cultural organization sectors than
ever before.

**Originality and value of the proposal**
Despite the rich evaluative research studies taking place at each state in the USA, there has
been little effort to synthesize these studies across different state boundaries in the past. This
proposal is unique in that we rarely have opportunities to scale evaluation research across
geographic boundaries and identify opportunities and threats, best practices and thematic focal
areas for charting future directions. The Grants to States planning and evaluation cycle is taking
place once every five years and most library evaluators are not aware of the opportunity far
less of the possibility of scaling the approach across collaborators, researchers, and library
leaders.

LSTA Evaluation reports are the best kept secret of outcomes assessment data in libraries. The
reports are now in their fourth five-year cycle and offer a rich perspective in the history of the
activities of the state library agencies over the last twenty years.

IMLS funding has been threatened as budget discussions for federal agencies and priorities are
changing in Washington DC. The LSTA evaluation data offer a useful tool for demonstrating the
value and success of the libraries operations at each state. A tool that can be used for advocacy
and improvement!
## APPENDIX A: IMLS Focal Areas and Intents

<table>
<thead>
<tr>
<th>Category</th>
<th>Intents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LIFELONG LEARNING</strong></td>
<td>Improve users' formal education</td>
</tr>
<tr>
<td></td>
<td>Improve users' general knowledge and skills</td>
</tr>
<tr>
<td><strong>INFORMATION ACCESS</strong></td>
<td>Improve users' ability to discover information resources</td>
</tr>
<tr>
<td></td>
<td>Improve users' ability to obtain and/or use information resources</td>
</tr>
<tr>
<td><strong>INSTITUTIONAL CAPACITY</strong></td>
<td>Improve the library workforce</td>
</tr>
<tr>
<td></td>
<td>Improve the library's physical and technological infrastructure</td>
</tr>
<tr>
<td></td>
<td>Improve library operations</td>
</tr>
<tr>
<td><strong>ECONOMIC &amp; EMPLOYMENT DEVELOPMENT</strong></td>
<td>Improve users' ability to use resources and apply information for employment support</td>
</tr>
<tr>
<td></td>
<td>Improve users' ability to use and apply business resources</td>
</tr>
<tr>
<td><strong>HUMAN SERVICES</strong></td>
<td>Improve users' ability to apply information that furthers their personal, family, or household finances</td>
</tr>
<tr>
<td></td>
<td>Improve users' ability to apply information that furthers their personal or family health and wellness</td>
</tr>
<tr>
<td></td>
<td>Improve users' ability to apply information that furthers their parenting and family skills</td>
</tr>
<tr>
<td><strong>CIVIC ENGAGEMENT</strong></td>
<td>Improve users' ability to participate in their community</td>
</tr>
<tr>
<td></td>
<td>Improve users' ability to participate in community conversations around topics of concern</td>
</tr>
</tbody>
</table>
ENDNOTES

REFERENCES


Communicating Value Across the University

Library Assessment Across Academic, Student, and Administrative Affairs

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Abstract

A recent survey of U.S. library directors has identified concerns in regard to their ability to communicate library contributions to student success to senior leadership and other institutional stakeholders, and to communicate the ways in which academic libraries contribute to strategic initiatives at the institutional level. This paper presents a case study of an academic library in which alignment with the university mission and strategic plan, and alignment of library assessment efforts with the broader culture of assessment at the university, have resulted in improved communication of library value to senior leadership, new investment in library facilities, and enhanced opportunities for collaboration across the university on strategic initiatives including student success, innovation in teaching and scholarship, and community engagement.

Introduction

Since the publication of the Value of Academic Libraries report (Oakleaf, 2010), academic libraries across the United States have sought new ways to demonstrate the contributions they make to institutional goals and strategic initiatives related to student learning, faculty productivity, innovation in teaching and scholarship, community engagement, and more. As part of this “value agenda,” librarians have pursued new approaches to engagement with students, faculty, and other stakeholders in order to identify new opportunities for collaboration and to demonstrate impact on institutional priorities. As Oakleaf (2010, pp. 29-30) wrote: “Academic librarians must understand institutional missions and how they contribute to them; they must also share that information with others by clearly aligning library services and resources to institutional missions. Communicating that alignment is crucial for communicating library value in institutional terms.” To this, one might add that the ability to communicate library value in institutional terms is critical to senior leadership support for investment in library staff and services during a period of seismic change in higher education finance models in the United States (Fiscal Federalism Initiative, 2015; Seltzer, 2017; “What Trump’s Budget Outline Would Mean for Higher Ed,” 2017).

Despite an unprecedented effort to support “value” studies in U.S. academic libraries since 2010, chiefly as part of the Association of College and Research Libraries (ACRL) “Value of Academic Libraries” (VAL) initiative (ACRL, 2014-2017), questions remain regarding the best way to communicate library contributions to student learning, student success, and other strategic initiatives pursued at the institutional level. A recent survey of U.S. library directors (Wolff-Eisenberg, 2017) highlighted this continuing concern, finding that directors: 1) have difficulty articulating the library contributions to student success; and, 2) “feel increasingly less valued by, involved with, and aligned strategically with their supervisors and other senior leadership” (p. 4). In order to provide continued support in this area, ACRL has partnered with OCLC Research to establish an “Action-Oriented Research Agenda on Library Contributions to Student Learning and Success” (OCLC Research, 2017). A participant in the first cohort of ACRL’s “Assessment in Action” (AiA) program (ACRL, 2012-2017), DePaul University presents a case study in how a commitment to mission and strategic alignment between the library and the university may serve to address concerns that campus colleagues and senior leadership do not fully appreciate the value of the academic library within the context of institutional goals.

In an earlier essay, Walter (2014) described how AiA guidelines dovetailed with existing commitments at DePaul University to collaboration in support of student success and to promoting a culture of assessment across the university. Conducted in 2013-2014, DePaul’s AiA project, a revision of information literacy instruction in the “Common Hour” provided to all students enrolled in its first-year-experience program, revealed ways in which students developed the “habits of mind”
associated with academic inquiry (Dempsey and Jagman, 2016). This was also the first year of implementation for a new
library strategic plan, and the first year following a major renovation of library space designed to promote greater
collaboration among learner support services at the university. Since 2013, the library has conducted assessments of student
learning, user experience, and library contributions to the strategic goals of the university, often in partnership with campus
colleagues. One notable outcome of this approach has been the invitation for librarians to join university leadership groups
such as the Assessment Advisory Board, Studio X Advisory Committee, and Cross-College Collaboration Task Force
(C3TF). Strategic alignment between the library, campus colleagues, and community partners has resulted in a higher profile
for library efforts and continued investment by senior leadership in the library, including the commitment of $4.3M (U.S.) to
another library renovation in 2016 (Marciano, 2016; Walter, 2017). Taken as a whole, the DePaul University Library
experience over the past 5 years presents a compelling counter to the concerns about senior leadership perception of library
value raised by Wolff-Eisenberg (2017).

DePaul University and the DePaul University Library

Founded in 1898 by the Congregation of the Mission (also known as the Vincentians), DePaul University is the largest
Catholic university in the United States, enrolling more than 23,000 students in 10 schools and colleges offering 300
undergraduate and graduate programs. One of the largest private, not-for-profit universities in the U.S., more than 1,800
faculty members teach across multiple campuses in Chicago and its suburbs and in cohort programs sponsored by corporate
partners. DePaul has been recognized for its diversity, service-learning programs, and sustainability efforts, and is home to
nationally recognized programs in the College of Business, College of Computing and Digital Media, and Theatre School. In
2016, DePaul was recognized by U.S. News & World Report as one of the nation’s “25 most innovative schools” (DePaul
University, 2017b).

DePaul has long been distinguished by a strong sense of shared mission among its faculty, staff, and students (Filkins and
Ferrari, 2004; Ferrari and Velcoff, 2006). Catholic in sponsorship, but pluralistic in composition, DePaul maintains a historic
commitment to meeting the needs of underserved communities for access to higher education, engaging with its urban
community, conducting research relevant to issues of contemporary concern to the community, and preparing students for
futures committed to service (Office of Mission and Values, 2016). “It is a maxim of ours,” the university’s sponsor, St.
Vincent de Paul, wrote, “to work in the service of the people” (de Paul and Coste, 1988), and this maxim continues to guide
work at the university where his remains “the name above the door” (Office of Mission and Values, 2014).

Commitment to its distinctive mission is evident in DePaul’s student body and emphasis on student success. With 36% of its
students coming from communities of color and 32% of its most recent freshman class representing first-generation students
(Enrollment Management & Marketing, 2017a), DePaul’s student body is highly diverse for a national, four-year, private
university. Recognized as a leader in strategic enrollment management, DePaul is notable for its success in supporting
students across this diverse community, with first-year retention rates, 4-year graduation rates, and 6-year graduation rates
considerably higher than those reported at the national level by peer institutions (Enrollment Management & Marketing,
2017b). Walter (2014) has described university-level leadership groups dedicated to coordinating efforts in support of
student recruitment, retention, and success, library involvement with those groups, and the role this involvement has played
in the successful launch of shared initiatives such as the Learning Commons (Najmabadi, 2017).

The DePaul University Library is comprised of the John T. Richardson Library, Loop Library, and library services delivered
to DePaul’s suburban campuses and cohort programs (DePaul University Library, 2017). With an annual budget of almost
$10M (US) in FY16, 34 professional librarians, and a total staff complement of 70+ FTE, the library contributes to a number
of campus programs, including first-year experience, Teaching Commons, and the new digital scholarship center, Studio X.
In recent years, the library has initiated partnerships in new areas of the university, including Enrollment Management and
Marketing, which has supported library initiatives related to K-12 community engagement and educational affordability. In
2013, a major renovation of the Richardson Library included the launch of the Information Commons, a technology-
e nhanced space including individual and collaborative workspaces, Learning Commons (https://library.depaul.edu/get-
help/Pages/learning-commons.aspx), and Scholar’s Lab (https://library.depaul.edu/services/Pages/Scholars-Lab.aspx). A
similar renovation in 2017 will see the launch of the Collaborative Research Environment (CoRE), Maker Hub, a suite of
digital media studios, and space for campus partners including Studio X, C3TF, and Faculty Instructional Technology Services (Walter, 2017).

Teaching, Learning, and Assessment at DePaul University

Another distinctive aspect of the institutional culture at DePaul is the commitment to teaching and learning across the university. As one of the largest, private universities in the U.S. where “faculty members’ priority is teaching” (DePaul University, 2017a), DePaul champions the role of the “teacher-scholar” in higher education. Evidence of this commitment can be found in the instructional improvement programs offered to faculty and staff through the university’s Teaching Commons (2017), including certificate programs in teaching and learning, online instruction, cultural competencies, and assessment of student learning. This commitment extends beyond the traditional areas of Academic Affairs, as seen in the Division of Student Affairs, which has established student learning outcomes in areas such as “Persistence and Academic Achievement,” “Socially Responsible Leadership,” and more (Division of Student Affairs, 2017a). Student Affairs staff provide student programs designed to meet these outcomes, seeing themselves as “[full partners] in the university’s efforts to promote student learning and success …. [recognizing] that learning happens always and everywhere throughout the student experience” (Division of Student Affairs, 2017b). Walter and Eodice (2007) and Hinchcliffe and Wong (2012) have noted the potential for developing “powerful partnerships” between libraries and student affairs programs, and, while there are factors that may make this difficult (Long, 2016), the core commitment to teaching and learning as part of the character of the institution has opened the door to many such partnerships at DePaul.

Collaboration between Academic and Student Affairs is also shaped by a shared commitment to assessment of student learning. The Office of Teaching, Learning, and Assessment (2017a) coordinates an annual assessment of student learning across the curriculum and has begun work with co-curricular units, including Student Affairs, Academic Advising, University Center for Writing-based Learning, and University Library to explore learning outside the classroom (Office of Teaching, Learning, and Assessment, 2017b). The Career Center is notable for its leadership of a university-wide effort to identify “transferable skills” inherent in academic programs, co-curricular programs, and student employment programs, and is now working with the library to more clearly define information literacy as a set of measurable skills transferable to the workplace (Coloma, 2016; Head, 2016; Walter, 2017). Library engagement with these programs has been coordinated since 2015 by the Library Assessment and Research Committee (LARC), whose members provide support for micro- and macro-assessments of library services, including, most recently, assessments of current models of reference service, user experience, and faculty engagement with digital scholarship services. A focus for LARC is the completion of the library’s annual assessment of student learning (discussed below).

DePaul’s commitment to having a “teaching library” (Walter, 2007) ensures that librarian contributions to teaching and learning inside and outside the classroom are recognized. Librarian involvement in programs such as the Assessment Advisory Board, Teaching and Learning Certificate Program Advisory Board, and Co-Curricular Learning Assessment Task Force ensures that reports of library contributions are widely shared. The library’s unique place at the crossroads of curricular and co-curricular teaching and learning is reflected in the library’s vision statement: “The DePaul University Library is a center for intellectual inquiry and academic engagement beyond the classroom, building and inspiring the campus and community partnerships distinctive of a DePaul education” (DePaul University Library, 2013).

Vision 2018

The DePaul University Library began work on its current strategic plan in late 2012, following the launch of the university plan, Vision 2018 (Office of the President, 2017). Vision 2018 established five goals for the university:

1. Enhance Academic Quality and Support Educational Innovation
2. Deepen the University’s Distinctive Connection to the Global City of Chicago
3. Strengthen Our Catholic and Vincentian Identity
4. Foster Diversity and Inclusion
5. Ensure a Business Model that Builds the University’s Continued Strength and Educational Excellence
While the library has adopted each of these as the goals for its own strategic plan (“To Work in the Service of the People: The DePaul University Library’s Strategic Plan, 2012-2018”), and has been recognized by senior leadership for contributions to a number of these goals [e.g., its leadership in the Chicago Collections consortium (http://chicagocollections.org/), a feature of the library’s contribution to Goal 2 (Mattson, 2016)], the remainder of this essay will focus on the library’s contribution to the initiatives related to teaching and learning, and associated with the goal of “[enhancing] academic quality and [supporting] educational innovation.”

**Foundations for Success**

A focus on Goal 1 is especially important for understanding collaboration and the communication of library value at DePaul because a fundamental concern for every office, unit, or program at the university in recent years has been its contribution to Goal 1 as part of the university’s bid for re-accreditation.

In 2017, DePaul was visited by an external review committee as part of its decennial re-accreditation by the Higher Learning Commission of the North Central Association of Colleges and Schools, one of six regional accrediting bodies for U.S. schools and institutions of higher education. As part of that review, DePaul was required to complete a “Major Quality Initiative” designed “to suit its present concerns or aspirations” (Higher Learning Commission, 2017). The DePaul MQI was the “Foundations for Success” initiative, which was designed to meet one of the sub-goals identified in the university’s strategic plan: to focus the entire university community on student learning and success (Office of Academic Affairs, 2016). The projects pursued across the university as part of “Foundations for Success” included: The Learning Commons, Support for Transfer Students, Improved Communication Across Student Support Offices, and more. Strategic alignment between library initiatives and the university strategic plan, together with a focus on the library’s contributions to efforts associated with “Foundations for Success,” have proven essential to communicating the value of the library to student success and to other strategic initiatives pursued by the university.

**Communicating Value Across Academic Affairs**

The library’s efforts to promote greater awareness of its contributions to student success grew from a strong foundation of support among its traditional partners in Academic Affairs. Library involvement in instructional improvement programs for faculty has been noted above, and a 2013 implementation of the Ithaka S+R Local Faculty Survey provided evidence that faculty recognize the library’s role in teaching and learning. Designed to provide local perspectives on issues highlighted in Ithaka’s triennial faculty survey (Ithaka S+R, 2004-2017), the DePaul survey was notable for the degree to which participants agreed that the library was “important” or “extremely important” to supporting their teaching activities and to developing undergraduate critical thinking and information literacy skills (Walter, 2013; Walter and Yu, 2013). Since 2013, the library has built on that foundation by establishing undergraduate learning goals for information literacy, learning goals related to the use of primary source materials, and annual assessments of student learning as part of university-wide assessment programs. The most recent of these, an assessment of student learning in a research seminar offered by DePaul’s School for New Learning, was recognized with the Office of Teaching, Learning, and Assessment’s annual Assessment Award (Schultz, 2017). Alongside these formal assessments of student learning, librarians have reviewed the way in which traditional assessment data related to reference services are captured, and the way in which the library contribution to innovation in teaching and learning is explored and communicated to faculty colleagues and senior leadership.

**Undergraduate Learning Outcomes**

Over the past several years, the Office of Teaching, Learning, and Assessment has worked with colleagues in Academic Affairs to establish student learning outcomes that may be assessed, both on an annual basis and as part of periodic Academic Program Review. While a complete review of the process by which DePaul’s Undergraduate Learning Outcomes for Information Literacy were established is beyond the scope of this paper, they may be summarized as follows (see Figure 1) (below)
Strategize – Identify gaps in one’s current knowledge in order to determine the data, evidence, and diverse viewpoints needed to support one’s research and learning goals

Analyze and Evaluate – Articulate essential attributes of different information sources and apply critical thinking in order to determine the reliability, applicability, and responsible use of the resource

Search and Explore – Demonstrate flexibility and persistence in developing and revising strategies for finding and using a range of resources

Engage and Extend – Contribute to scholarly conversation at an appropriate level and credit the contributing work of others in their own information production

Figure 1: DePaul University Information Literacy Learning Outcomes (2016) (developed by DePaul University Library staff in collaboration with the Office of Teaching, Learning, and Assessment)

Discussions of the use of these outcomes in undergraduate information literacy instruction may be found in Dempsey and Jagman (2016) and Alverson and Schwartz (2017).

These learning outcomes have also been associated with issues specifically related to the use of primary source materials in special collections, also known as “artifactual literacy” (Carini, 2016), and an initial assessment of student learning in this area has been completed in collaboration with faculty teaching a research methods sequence in History (Nelson, 2015).

In addition to sharing this work with faculty through Teaching Commons programs and the annual assessment process, librarians have collaborated with colleagues in the First-Year-Writing program to establish a “Library Research Prize for First-Year Writing.” Awarded for the first time in Spring 2017, nominees for this award were required to submit a writing sample along with a reflective “research statement” focused on “how they went about the process of information exploration and discovery and what they learned from it” (Parker, 2017). The criteria for the prize are aligned with information literacy instruction provided in first-year writing courses following its revision to reflect the undergraduate learning outcomes described above (Alverson and Schwartz, 2017).

Innovation in Instruction

While efforts associated with establishing, assessing, and communicating the impact on student learning derived from the implementation of new learning outcomes demonstrate the library’s contribution to enhancing academic quality, the library has also pursued initiatives designed to demonstrate contribution to educational innovation. Chief among these have been efforts associated with teaching and learning in emergent areas of digital scholarship.

Since the launch of the Scholar’s Lab in 2013, librarians have collaborated with faculty across the university in a swiftly-growing digital scholarship program, providing the space, technology, and expertise needed to support faculty moving into new areas, including digital humanities, data-intensive social sciences, and data science. From the first, award-winning English capstone course taught in the Scholar’s Lab by a faculty-librarian team (2013), to the establishment of the Graduate Certificate in the Digital Humanities and the C3TF (both 2014), to the launch of Studio X (2017), and, most recently, the establishment of a university-wide group of faculty and staff interested in using maker spaces in their teaching, librarians have provided leadership for efforts designed to promote educational innovation. In 2016, the library made a strategic investment in new staff members to reinforce this role, with the hiring of its first Digital Scholarship Librarian, its first Data Services Librarian, and an Information Technology Librarian with prior experience managing maker spaces in public libraries. Innovation in using information resources across the curriculum has also been supported by the library’s recruitment of a “Wikipedian-in-Residence,” who has engaged faculty interested in including Wikipedia-based assignments in their classes (Nelson, 2017). With the upcoming launch of the Maker Hub, Studio X, and C3TF programs in the library, there will be new opportunities to explore how to assess and communicate the library’s contribution to educational innovation at DePaul.
Communicating Value Across Student Affairs

The institutional characteristics supporting collaboration between the library and Student Affairs have been noted above. This environment made DePaul an ideal participant for the Assessment in Action program, as colleagues from Academic and Student Affairs (First-Year Programs, Writing Center, Academic Advising, Center for Students with Disabilities) were already working with the library to design and deliver the “Common Hour” instruction as part of the first-year experience. This collaborative culture has informed the development of other programs, as well, e.g., Banned Books Week, which has included partners from the University Center for Writing-based Learning, Office of Multicultural Student Success, and Center for Identity, Inclusion, and Social Change. Chief among these, in terms of the library’s ability to help senior leadership to appreciate its value to student success, has been the Learning Commons.

The Learning Commons

Launched in 2013 as one of the initiatives associated with “Foundations for Success,” the Learning Commons brings together peer-based learner support programs from around the university, including the University Center for Writing-based Learning, STEM Tutoring Center, Career Center, Coleman Entrepreneurship Center, Office of Multicultural Student Services, college-based programs, Supplemental Instruction, and more. Providing a “one-stop shop” for student success efforts, the Learning Commons has proven successful in promoting use of learner support programs and facilitating collaboration across programs in terms of shared approaches to recruiting and training peer tutors, collecting use data, and developing joint programs. Figure 2 (below) documents the growing use of Learning Commons programs by students since 2013:

<table>
<thead>
<tr>
<th></th>
<th>Learning Commons Appointments (All Programs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY2013-14</td>
<td>1,254</td>
</tr>
<tr>
<td>AY2014-15</td>
<td>1,528</td>
</tr>
<tr>
<td>AY2016-17</td>
<td>3,209</td>
</tr>
</tbody>
</table>

*Figure 2: Use of Richardson Library Learning Commons Services*

In addition to this overall growth in use of learner support services provided through the Learning Commons, certain programs have seen especially significant growth in use since joining, including the Office of Multicultural Student Services (+18%) and Supplemental Instruction (+81%).

The relationships built among staff and students associated with the Learning Commons have also had the effect of promoting collaboration among peer leadership programs, an outcome highlighted in the final report on the Learning Commons as part of “Foundations for Success.” Participation in the Learning Commons has also had an impact on the library’s peer leadership programs, including the EDGE Student Employment Team and the Peer Research Assistant program, which was featured as part of the university’s 2016 Peer Tutor and Mentor Summit (https://resources.depaul.edu/student-success/tutoring/Pages/peer-tutoring-mentoring-summit.aspx).

While the Learning Commons has provided the library with opportunities to promote its expertise in research assistance as a component of student success, its physical location in the library also reflects a new area of assessment being explored at DePaul around the impact of co-curricular services and spaces on student learning, and this is an area that will be explored further in the future.

Communicating Value Across Administrative Affairs

The foundation for communicating library value to senior leadership has been noted above in regard to alignment with the university’s mission, strategic plan, and re-accreditation effort. The library’s success in establishing new partnerships with administrative areas not traditionally associated with the library, e.g., Enrollment Management and Marketing, has also been
noted. To conclude this discussion of engagement with administrative areas of the university, the author will briefly introduce library engagement with learning analytics and institutional affiliation programs.

**Learning Analytics**

Learning analytics is “the measurement, collection, analysis, and reporting of data about learners and their contexts, for the purposes of understanding and optimizing learning and the environments in which it occurs” (Conole, et al., 2011). The establishment of a learning analytics system (“BlueStar”) was a component of “Foundations for Success” (Teaching Commons, 2017). Oakleaf (2016) has described the emergent engagement between libraries and campus learning analytics programs, and this was also the subject of a series of ACRL webinars (ACRL, 2016). The DePaul University Library was established as a learner resource in BlueStar in late 2016, and was established near the same time in Student Affairs’ complementary “campus community engagement system” (“OrgSync”) (Oakleaf, et al., 2017). While space does not allow for a detailed discussion of library contributions to learning analytics programs in both Academic Affairs and Student Affairs, library initiative in pursuing these partnerships reflects several of the approaches noted above.

**Institutional Affinity**

One of the sub-goals of Vision 2018 is to “strengthen the sense of community, affinity and institutional pride among all DePaul constituencies,” and this is an area where library initiatives such developing the DePaul Heritage Digital Collection (http://libservices.org/contentdm/heritage.php), the “Into the Archives” feature for DePaul Newsline (http://www.depaulnewsline.com/departments/into-the-archives), and an innovative approach to the American Library Association’s “Libraries Transform” marketing campaign (Libraries Transform, 2017) have made notable contributions. Each of these initiatives has allowed the library to establish new partnerships with key “communicators” at the university, including the Office of Public Relations and Communications, and the Office of Advancement and Alumni Affairs.

**Conclusion**

Wolff-Eisenberg (2017) identified a critical concern for academic library leaders when she argued that they felt increasingly unsure of their ability to communicate to senior university leaders in a compelling way the contributions made by libraries to student success and other strategic initiatives. The importance of library leaders having the ability to do this was noted by Oakleaf (2010) at the beginning of the current drive to establish assessment, research, and communication initiatives focused on “value,” but it appears there is work yet to be done. DePaul University provides a case study in the ways that mission alignment, strategic alignment, and a proactive approach to campus engagement, assessment, and strategic communication may inform and extend the library’s efforts to communicate its value to institutional stakeholders, both among traditional partners in Academic Affairs, as well as new partners in Student Affairs and administrative programs.
References


Data and Methods
Between 2015 and 2017, the principals of Athenaeum21 have conducted 96 interviews with 91 people about library assessment in academic libraries and its current state in their institutions. Interviews were conducted with library directors and leaders (associate directors, associate university librarians), library assessment practitioners, other library staff, faculty and other campus partners, and leaders and experts in the academic library community.

The majority of interviewees (35%) were library directors. Most of the interviewees were actively leading (directors or associate directors) or working in academic libraries. 30% of the interviewees were library assessment practitioners or professionals. Other library staff (managers, collections specialists, etc.) composed 18% of the respondents. And approximately 19% of the interviewees were not actively employed in libraries. This group of respondents included those who work:

- for private foundations who commonly fund projects in libraries
- non-profit organizations that support libraries
- as faculty members (of various subjects) but frequently partner with their library around areas of assessment
- as library science faculty
The vast majority of interviewees were in the US (80%) or Canada (9%), but overall there were respondents from six continents.

The first set of 17 interviews were conducted in 2016 as part of the Andrew W. Mellon Foundation-funded project "Library Assessment Toolkit & Dashboard Scoping Project", a six-month research project in collaboration with the University Library of the University of California, Davis; the Bodleian Libraries of the University of Oxford; and the Staats und Universitätsbibliothek, Göttingen, Germany. The research project examined how libraries currently assess their resources and services, and areas of opportunity to streamline and visualize library performance through a common and customizable set of key performance indicators (KPIs) and dashboard modules. The research team interviewed library assessment leaders and practitioners across diverse institutions and geographies, and reviewed the current landscape of technology, tools, and services currently addressing their needs.

The other 79 interviews were conducted in 2017 on behalf of the Association of Research Libraries (ARL) as part of a collaboration with their Assessment Program Visioning Task Force in the development of a forward-looking assessment program that advances the organizational outcomes of the 21st-century research library. ARL is a non-profit organization of 124 research libraries at comprehensive, research institutions in the US and Canada that share similar research missions, aspirations, and achievements. ARL’s mission is to influence the changing environment of scholarly communication and the public policies that affect research libraries and the diverse communities they serve. ARL pursues this mission by advancing the goals of its member research libraries, providing leadership in public and information policy to the scholarly and higher education communities, fostering the exchange of ideas and expertise, facilitating the emergence of new roles for libraries.

The ARL Assessment Program Visioning Task Force is charged to consider all current and potential ARL assessment-related services, including the goals, outcomes, deliverables, staff, and other resources related to the existing metrics and tools. The interviews were a key component of the data-gathering phase targeted at understanding the key types of issues ARL libraries will need to address in their measurement and evaluation program in the context of contemporary movements in higher education.
The questions differed slightly between the two sets of interviews, but the methods were the same. Each interview was semi-structured and lasted between 60 and 90 minutes. The majority of the interviews were conducted by telephone and recorded with the permission of the respondents. The interviews were not fully transcribed, but there were usually two interviewers present for the interviews and one person led the question-asking while the other took notes. The recording were used to clarify any points that may have been missed during the interview.

All interviews had a series of questions that were aimed and gauging the current state of assessment activities at the library (including top assessment needs and questions), including current tools and services used and current sources of data. In both cases, these questions were aimed at understanding:

- What are the primary questions that the library is trying to answer with its assessment activities?
- What is the relationship between assessment activities and the library’s strategic plan?
- What are the tools and data sources that are being used in trying to answer these questions?
- How well are these current tools and data sources meeting the library’s needs?
- What else would be useful?

Both sets of interviews also asked a series of questions about the library’s relationship with the broader university or institution. These questions were based on uncover the formal and/or information relationships between library assessment activities and the larger institutions goals and assessment activities. These questions were intended to uncover:

- What is the nature of the relationship between the library and the broader institution (e.g., formal vs informal; what offices are involved)?
- Does the library’s assessment activities tie in directly to the university or parent institution's strategic plan?
- Does the university or parent organization have institutional solutions (e.g., business intelligence software, data warehouse, etc.)? If so, does the library have access to it?
- How important is it to your library to integrate with your institutional assessment solution?

The interviews differed in a few key areas. The UCD interviews went into some significant detail around technical and data needs. That is, what does the library have or want access to on a daily, weekly, monthly, or annual basis and what in form do they want this reported (spreadsheet, dashboards, etc.)? While the interviews for the ARL project that were conducted with assessment practitioners did go into some technical detail, the bulk of the interviews focused on current and desired use of ARL’s assessment data, tools and services. The interviews with library directors similarly focused not only on what they would like to see the future of assessment activities look like, but specifically how ARL can and should support their needs.

<table>
<thead>
<tr>
<th>Types of Questions</th>
<th>UCD</th>
<th>ARL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current assessment questions</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Current tools and services</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Current data sources</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Desired data, tools, and services</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Institutional assessment activities</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Relationship with institutional activities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In April of 2017, Atheaneum21 also conducted an online survey for the ARL assessment program visioning project. The survey consisted of 21 questions, three of which allowed for free-text responses. The survey was sent to ARL members and non-members alike via the ARL-ASSESS listserv, an open email list for anyone engaged or interested in library assessment topics. The number of overall responses was 211 (approximately a 9% response rate), with most questions having a response rate above 140. Most respondents were assessment librarians (49), followed by library directors and associate or assistant directors.

Findings
Taken in aggregate, the 96 interviews and survey conducted in the last two years have uncovered a varied landscape in library assessment. The authors have spent some time in trying to create a model for understanding the key factors for creating a successful library assessment program and that is presented here. In addition to the emergence of a model, some clear indicators for future trends and trajectories in library assessment have been uncovered and are also presented.

Characteristics of Library Assessment Programs Today
It was clear from the data that the library assessment landscape, mind-set, culture and technologies have evolved substantially over the last decade but remain uneven. A greater focus on end-users and improving services quality have been widely adopted and operationalized by some libraries (largely these are medium to large-sized research libraries) but not by others. The data indicated that a large number of library managers approach assessment and evaluation in an ad hoc and reactive manner as questions arise. Managers spend valuable time manually collecting, cleaning, and normalizing data from
diverse systems, and then perform one-time or static interpretations. While this is seen as an improvement on not engaging in assessment activities at all, there was general consensus that improvements can be made in the data, tools, and methods.

In the libraries we engaged with, there were two different areas of assessment methodologies and data: one to facilitate process and service-quality improvements within the library (micro); the other is to communicate the value of the library to extra-library stakeholders (strategic). Those libraries who have engaged in assessment activities for a number of years, have largely started with the former. This is reflected in the development of library assessment tools and methodologies over the last 15-20 years, which focus on measuring library “inputs” (size of collections, number of interactions, expenditures, etc.) as well as evaluating and benchmarking service quality.

The latter assessment focus - on communicating the value of the library to stakeholders outside the library - appears to be a more recent trend, evolving from a sense of dissatisfaction with simply trying to measure, count, or improve individual services. This was evident in the number of interviewed library directors who said that their manager (provost, chancellor, etc.) was no longer convinced or compelled by the data they were being presented. Time and again, interviewees said that they are being pressed to tell stories not of collection size or service improvement, but of impact. If the initial question driving many library assessment activities over the last few decades has been “how can we improve the services the library offers?” then the arising question now is “how can the library help improve the offering of the college or university?”

The survey results also reflected this trend, with a majority of respondents saying that their primary reason for engaging in assessment activities was to measure their strategic performance (that is, their success in meeting their strategic objectives).

<table>
<thead>
<tr>
<th>What is the single most important reason that you engage in assessment activities?</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=157</td>
</tr>
<tr>
<td>Measuring performance against my library's strategic objectives and implementation plan</td>
</tr>
<tr>
<td>Process Improvement</td>
</tr>
<tr>
<td>Other (please specify)</td>
</tr>
<tr>
<td>Cooperation with institution-level assessment processes (e.g. initiatives from the Provost's Office, Institution...</td>
</tr>
<tr>
<td>Marketing and/or advocacy for library services</td>
</tr>
<tr>
<td>Contribute to governmental reporting requirements (local or national)</td>
</tr>
<tr>
<td>Looking for ways to save money</td>
</tr>
</tbody>
</table>

Some differences in the responses were noted when looking at the data based on position, with AULs and library directors looking at measurement against strategic objectives and AULs particularly focused on process improvement.
As is well documented by the academic work looking at library assessment, strategic assessment requires a fully-permeated culture of assessment, defined here not just as “where assessment is a regular part of institutional practice” (Farkas, Hinchliffe & Houk, 2015) but one in which the micro assessment activities (counting things, and measuring service quality) are inexorably linked with the strategic. In other words, the two assessment methodologies (micro and strategic) should not compete, but should be linked.

The interviews and survey conducted for the ARL project asked respondents directly about the culture of assessment in their library and their host institution. The interviews for the UC Davis project did not enquire directly about culture, but in many cases it was uncovered anyway. As with the focus of the assessment activities, the results were mixed.

In order to judge the quality of the culture of assessment, questions were asked about the link between library assessment activities, the library strategic plan, and the host institution’s strategic plan. The vast majority of respondents in the survey said that their assessment activities were directly tied into their library’s strategic plan, with fewer reporting a connection to their university’s strategic plan. The survey indicated a more robust link between assessment activities and strategic planning than did the interviews, but the connection was clearly there in the majority of interviewees institutions.
Interviewees and survey respondents were also asked more directly about the culture of assessment at their library and institution. In the survey, a majority of respondents felt that the culture of assessment was either very well or somewhat supported at both their library and institution.

![Culture of Assessment @ Institution vs Library](chart)

<table>
<thead>
<tr>
<th>Cultural Support</th>
<th>Institution</th>
<th>Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very well supported</td>
<td>32</td>
<td>40</td>
</tr>
<tr>
<td>Somewhat supported</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>Neither supported nor unsupported</td>
<td>14</td>
<td>19</td>
</tr>
<tr>
<td>Not at all supported</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

N=151
These results seemed to indicate that assessment activities are both present and well-supported at a majority of the institutions that were part of our dataset. In other words, most of the libraries we looked at had at least a reasonably robust culture of assessment.

Where great differences appeared between the libraries, though, was in how the culture of assessment started or was developed. Models such as the Quality Maturity Model (QMM) (Wilson, 2015) imply a linearity in an institution’s progression to maturity, or at least a cascading effect. For example, in outlining five levels of quality maturity in the QMM,

1. Ad hoc
2. Repeatable
3. Defined
4. Managed
5. Continuous

there is an implication of a linear progression from one to five. Similarly, With a focus on the development of an actionable, measurable strategic plan, there is an implication of cultures of assessment developing from the “top down.”

The interviews conducted over the last two years indicated, however, that cultures of assessment have developed (and are developing) from a number of different approaches and places within the library. Creating a culture of assessment doesn’t always come from the top - in the libraries or the parent institution. The table below provides examples of the development of strong assessment programs that were evident in the interviews.

<table>
<thead>
<tr>
<th>How did the culture develop?</th>
<th>What did it look like?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership from the top</td>
<td>Led by the library director and/or senior leadership, a strong and compelling strategic plan is developed. Associate directors and managers are required to take responsibility for implementing their relevant part of this plan and also responsible for developing the metrics that will indicate success. There may or may not be staff dedicated to assessment activities.</td>
</tr>
<tr>
<td>Parent institution culture</td>
<td>Similar to the above example, but with the requirements coming from the university leadership.</td>
</tr>
<tr>
<td>Leading from below</td>
<td>Individual managers or staff members are not required to measure their service quality but take the initiative of devising metrics to indicate how well they are meeting the library’s strategic goals. In the next round of strategic planning, this requirement is cascaded to other parts of the library.</td>
</tr>
<tr>
<td>Passion, interest, and skills</td>
<td>Individual staff devise an assessment initiative based on their own passion, interest, or skills. These activities are then directly supported by the library leadership and held up as models of exemplar performance. Such assessment activities may not be formally introduced into the strategic planning process, but will continue to be supported and lauded.</td>
</tr>
</tbody>
</table>
While the authors’ initial expectation was that cultures of assessment would stem from strong leadership, the data uncovered that successful and flourishing library assessment programs may include any of the following characteristics:

- the assessment librarians report directly to the dean or director of libraries
- the dean or director of libraries strongly values and reinforces continuous assessment throughout the library, but perhaps has no designated ‘assessment’ staff
- the day-to-day assessment activities tie into strategic plans and annual objectives,
- the assessment staff have strong working connections with other data-collection and data-analysis peers on campus.

It is clear that there is more than one way to build a culture of assessment. However, sustaining and fostering a culture of assessment has one universal trait: the strongest library assessment programs are those where assessment is inseparable from organizational change (that is, the results of assessment activities lead to action).

**The Library Assessment Ecosystem and Library Assessment Success Models**

This last point, that strong assessment programs cannot be successful or sustained without being tied to cultural and strategic change do clearly align with The Quality Maturity Model (Wilson, 2014 & 2015) as well as its underlying model of Total Quality Management (TQM). The five levels of assessment maturity (Ad Hoc, Repeatable, Defined, Managed, Continuous) largely reflect what was seen in the data collected for these two projects. These interviews essentially substantiate the statement that a library with a strong and ubiquitous culture of quality will engage in continuous quality improvement (Wilson, 2014). As mentioned above, though, what was revealed in this data, was an indication that the progression to continuous service improvement was frequently non-linear. While recent research, such as Wilson (2014) and Farkas, Hinchliffe, and Houk (2015) have focused on drawing a picture of of what a mature culture of assessment looks like, our proposed model is focused on the origins of mature assessment programs, and the multiple extra-library contexts which may present obstacles to, and/or opportunities for, library assessment success within their larger ecosystems.

The ecosystem relevant to library assessment extends well beyond the library to libraries’ parent entities, higher education and research standards bodies, and advocacy organizations. Because each library’s parent entity and standards context is different, there is no one-size-fits-all model for library assessment success. In fact, there are multiple models of library assessment success. Further, there are best practices within certain components that can be utilized or worked toward, when relevant to each library’s specific context.

Based on our findings, we would therefore propose the following modular, flexible model to understand the library assessment landscape at its broadest, and to help libraries contextualize their own unique assessment efforts and measures of success within their larger ecosystems.
The Library Assessment Success Model identifies library assessment best practices within each of the library and extra-library landscape core areas. The framework enables libraries to choose the areas relevant to them, and evaluate their situation against best practices for those areas.

Just one example of best practices and success measures for the core area of “Library’s Culture of Assessment” follows.
Reviewing the associated checklist enables a library to identify where it falls relative to the best practices that we’ve identified that have resulted in robust cultures of assessment at other libraries. Each core area has similar best practices identified during the course of our research.

**Conclusion: Future Trends & Needs**

The interviews indicated that the progression towards “impact” assessment rather than “service quality improvement” will continue. Library directors, in particular, indicated a growing requirement to communicate their direct contribution to the strategic goals of their parent institution over their success as a library. Increasingly, the value of the library will be judged by its ability to help students learn and researchers research. While this has long been taken for granted as central to the functioning of the library, this will need to be made explicit—particularly for those at publicly-funded institutions. There will need to be close alignment to the parent institution’s priorities.

Trends in academic and research assessment may also have an impact (and provide an opportunity) for library assessment. Several recent initiatives are aimed at aligning what is measured in academia with what is actually valued. The HuMetricsHSS project is “rethinking humane indicators of excellence in the humanities and social sciences.” The Center for Open Science (COS) aims to “increase openness, integrity, and reproducibility of research” by supporting a culture change in the way science is conducted and communicated. In addition to its role as an advocacy group, the COS is also creating new metrics for measuring scientists based on the values that they espouse—namely, scientific transparency, data sharing, and reproducibility.

This movement towards value-based and impact-focused assessment will continue and will require new methods and metrics. While much of the service quality measurements that have taken place in libraries to date are based on quantitative data and structured qualitative analysis, these new measures will require a much more mixed approach. Libraries will have to tell the story of their impact, just as academics will have to tell the story of their value.

In order to meet these challenges and tell their story, libraries will need better data. It will need to be consistent and compelling, but will also need to be easy to gather and interpret. This data will need to be paired with much better reporting tools. The library managers that we interviewed during our research felt that the availability of more modular tools and dashboards, for example, could free them to probe and interpret more data, think more strategically, and develop more meaningful questions about measuring and evaluating library performance.

This data will also need to be linked directly to the mission, strategies, and goals of the library and the parent institutions. This could be done through the development of a framework, which should provide a clear connection between the strategic goals and the data (qualitative and quantitative) that are collected to evaluate them. The framework should allow for the...
definition of metrics and methodologies that can be used to locally illustrate a library’s value, as well as the clear establishment of boundaries of data worth collecting. For discussion and proposal of such a framework, see Hurst et al (2016).

As Town pointed out in 2011, “the move from internal operational measures towards more strategic and cultural measures, generated to meet broader advocacy needs, requires a vehicle for communicating these effectively” (p. 309). Our data indicates that this trend is continuing and will continue, but also that the vehicle for measuring more strategic goals does not yet fully exist. Understanding not just the shape or character of robust cultures of assessment, but how and when they originate, will help provide libraries with the tools and framework for supporting this continued shift.

Bibliography


COUNTER: Release 5 of the Code of Practice

COUNTER was one of the first, if not the first, standards organization established for the modern information environment. It has succeeded in bringing together a collaboration of publishers and librarians to develop and maintain the Code of Practice for counting the use of electronic resources. It has also ensured that most major publishers and vendors are compliant by providing their library customers around the world with COUNTER usage statistics. COUNTER maintains and publishes the Code of Practice and also publishes the registry of COUNTER-compliant vendors and publishers.

The COUNTER Code of Practice was originally developed to provide a service to librarians and others who purchase subscriptions to publishers’ content. The intention was to allow librarians to easily compare their usage across different publishers’ content, and let them use that information to calculate a cost-per-download for their subscriptions. COUNTER reports were not originally intended to be used by publishers as a way of measuring usage across their client base, but are increasingly being used for that purpose.

Librarians use COUNTER usage reports to:

- Inform renewal decisions based on COUNTER data about well-used content
- Inform new purchasing decisions based on COUNTER data about access denied as the result of a content item not being licensed or because concurrent/simultaneous user licence limits were exceeded
- Inform faculty about the value of the library and its resources
- Understand user behaviour and improve the user experience

Most publishers also use COUNTER usage reports to:

- Provide reliable and consistent usage data to their customers
- Increase sales by using COUNTER data about access denied as the result of a content item not being licensed or because concurrent/simultaneous user licence limits were exceeded.
- Inform editors and authors about the usage of their publications

It became clear that the COUNTER Code of Practice needed to evolve. Consultation with content providers and librarians showed that they found the Code of Practice too complex and complained that there were inconsistencies in reports, metric types and formats. Librarians were unhappy about the long-tail of non-compliant publishers. The COUNTER Code of Practice Release 4 was published in 2012, and since then publisher platforms have changed in functionality.

In 2015, COUNTER established a Technical Working Group to develop Release 5. The group is chaired by Oliver Pesch, product strategist for EBSCO Information Services, and is a collaboration of publishers and librarians. The first draft of the Code of Practice Release 5 was published for consultation in January 2017 and feedback from all stakeholders informed the final draft, which seeks the balance between addressing changing needs and reducing the complexity of the Code of Practice to ensure that all publishers and content providers can achieve compliance.

Code of Practice Release 5

This new release of the Code of Practice is a radical approach. It reduces the overall number of reports by replacing many of the special-purpose reports that are seldom used with a small number of generic reports that are flexible. New metric types and attributes have been created. The main features are as follows:

Report types

In rethinking the Code of Practice the Technical Working Group introduced four “Master Reports” which are at the heart of Release 5:

- Platform Master Report
- Database Master Report
- Title Master Report
- Item Master Report

Librarians will be able to use these Master Report to customize their analysis to meet their specific reporting needs. For illustrative purposes only, the mock-up of a reporting interface in Figure 1, shows how librarians will be able to retrieve usage data at title level usage by filtering which metric types to show, which data types (e.g. books or journals) and to decide if they want usage for material under subscription (Access Type = Controlled), Gold Open Access or both; and to select a range of years of publication.
While the flexibility provided by the Master Reports are welcome, there are challenges when comparability is desired; therefore, Release 5 goes further to define a series of “Standard Views” on the Master Reports. The Standard Views address common use cases and are essentially a set of pre-defined attributes and filters for the corresponding Master Report.

Platform Reports
- Platform Usage

Database Master Report
- Database Search and Item Usage
- Database Access Denied

Title Master Report
- Book Requests (Excluding OA_Gold)
- Book Access Denied
- Book Usage by Access Type
- Journal Requests (Excluding OA_Gold)
- Journal Access Denied
- Journal Usage by Access Type
- Journal Requests by YOP (Excluding OA_Gold)

Item Master Report
- Journal Article Requests
- Multimedia Item Requests

Metric Types
Release 4 of the Code of Practice has 25 metric types, many of which are format specific. In Release 5, the number of metric types is reduced to 12:

Items:
Release 5 introduces this new vocabulary of format-agnostic metric types. This is necessary because for example, a video is not text so “full text” is not appropriate. "Investigations" is a superset metric in that it counts all activity a user has for an item where an item is the unit of content accessed i.e. article, chapter, video etc. A way of looking at it is that “investigations” are an overall measure of the user’s interest in a content item. An “investigation” is tracked when a user performs any action in relation to a content item or title, while a “request” is specifically related to viewing or downloading the full content item (see Figure 2).

In terms of usage reporting, Investigations and Requests can be understood through the following Scenario:

In terms of usage reporting, Investigations and Requests can be understood through the following Scenario:
Susan is researching the history of antibiotics on Publisher Platform Alpha. From a list of search results, she opens three article abstracts and a video record. All four records are different, but two of the articles are from the same journal. The counts are:

- total_item_investigations: 4
- unique_item_investigations: 4
- unique_title_investigations: 3

After reading the abstracts, Susan downloads the PDFs for two of the articles, both from the same journal. The counts change to:

- total_item_investigations: 6
- unique_item_investigations: 4
- unique_title_investigations: 3
- total_item_requests: 2
- unique_item_requests: 2
- unique_title_requests: 1

Additional Attributes

In order to offer the flexibility and depth or reporting, Release 5 introduces a series of additional attributes that can be combined with the simplified set of metric types:

- Data Type
- Section Type
- Access Type
- Access Method
- Year of Publication (YOP)

Data Types

Data_Type identifies the general type of content being accessed or for which usage is being reported. This attribute is used when creating Standard Views for Books and Journals and is an optional parameter for the Title Master Report and can be used to generate summaries in a Database Master Report or Platform Master Report:

- Article
- Book
- Book Segment
- Database
- Dataset
- Journal
- Multimedia
- Newspaper or Newsletter
- Platform
- Other
- Repository Item
- Report
- Thesis or Dissertation

Section Types

Section_Type when content is delivered in “chunks” (sections) this describes what that section is, e.g. a book may be accessed by the chapter; content in a journal is accessed by article.

This attribute is an optional parameter for the Title Master Report:

- Article
- Book
Access Types
Access_Type describes the nature of access control that was in place when the content item was accessed.

This attribute is in filtering for Standard Views and Master Reports and is included in Book Usage by Access Type and Journal Usage by Access Type Standard Views. Its primary role is to differential usage of gold open access content from content that requires a license:

- Controlled
- OA_Delayed (reserved for future use)
- OA_Gold
- Other_Free_to_Read (repositories only)

OA_Delayed is content that became open access after an embargo period had expired. OA_Delayed is NOT part of the initial release of R5. It will be introduced at a future date (with sufficient notice) after further study.

Access Methods
Access_Method is an attribute indicating whether the usage related to investigations and requests was generated by a human user browsing and searching a website (“regular”) or by Text and Data Mining processes (TDM). TDM usage is excluded from the standard views for Journal and Book usage:

This attribute appears as an optional parameter the Master Reports:

- Regular
- TDM

Year of Publication
Year of Publication (YOP) is the year of publication for the content item accessed. If content is available in print and online format and the publication dates of these two formats differ, the year of publication of version of record (normally the format that is published first) is used.

YOP is an option attribute in Title Master Report, Database Master Report and Platform Master Report. It appears as a column in the Journal Requests by YOP (Excluding OA_Gold) Standard View:

- yyyy
- 0001 (unknown)
- 9999 (articles in press)

Simplified Report Formats
Release 4 reports are inconsistent across formats. For example, Database Report breaks out usage by metric type while Journal and Book reports do not. Release 5 reports are consistent across all format types, consistent headers, consistent detail and using a consistent vocabulary.

Addressing community feedback
The final draft of Release 5 address most of the feedback received during the consultation period. However, there are certain things COUNTER has not been able to include. For example, some librarians wanted to see reporting on sessions, but modern interfaces make sessions hard to capture and somewhat inconsistent in their interpretation. Some librarians also requested output of the report headers to a separate tab in Excel. When reports are downloaded as TSV, there are no tabs so this is not a feasible option. However, the Release 5 reports have a blank row before the report body to making sorting and filtering operations and generating pivot tables painless. Excel and Google Sheets allows users to “Freeze” the header row to make it easy to compensate.

Other consultation feedback has required new approaches. For example, a frustration expressed by librarians with Release 5 is the no reporting of zero usage. The reason for this is that not all publishers produce their COUNTER statistics from the same system they use to manage their access control. This means reports including zero usage would be huge, with rows and rows of zero usage of not only the titles to which the library subscribes, but all the titles on that publisher’s platform. To address this issue COUNTER is being represented on a new NISO initiative, currently referred to as KBART-Automation for SUSHI harvesting of both usage and entitlements.
Library Consortium managers were concerned that Consortium Reports are not a requirement of Release 5. This is because the large size of many consortia and large amounts of content provided by some vendors means that creating and consuming Release 4 consortium reports was not always possible. COUNTER is committed to facilitating the development open source tools that will provide consortium administrators with the ability to generating consolidate usage reports for the consortium.

**Timeline for Transition**
The final version of Release 5 will be published in July 2017. Content providers are expected to be compliant with the new release by January 2019. This means February 2019 for delivery of Release 5 reports starting with January 2019 usage. However, content providers may choose to provide their Release 5 compliant reporting service before February 2019.

COUNTER will support content providers through an implementation forum, guides and webinars. Content providers will also be able to test their implementation on the free tool provided by COUNTER, the COUNTER Validation Tool.

**Continuous Maintenance**
COUNTER Code of Practice Release 5 will operate under a continuous maintenance procedure to allow incremental changes to be made to the CoP without creating a completely new release. This section describes those procedures. Changes and updates to the COUNTER Code of Practice can be submitted by anyone. COUNTER Executive Committee will review submissions and provide a response with one of the following actions, and provide clarity when needed:

- Proposed change accepted without modification
- Proposed change accepted with modification
- Proposed change accepted for further study
- Proposed change rejected

If further study is needed, COUNTER may convene a separate working group to study the proposal and make recommendations related to the suggested comments.
Toward an Evidence Based Culture for The Documentary Heritage Sector

N.Bell, Prof. M. Moss, Prof. J. McLeod, Dr. D. Thomas

Context
This paper will present an overview and main findings of a 12 month research project between The National Archives, UK and Northumbria University i-School. The purpose of the study was to understand how documentary heritage collections are valued and how the impact of the services they offer can provide a much needed evidence base for better advocacy, and to improve practice. [1] In the face of consistent pressures on funding, technological change and emerging social trends that are challenging our notions of a collection as a physical space, a place of learning, the need for evidence to demonstrate the value of publically funded services is greater than ever.

In sharing the findings of this work, we seek to inspire researchers to extend the focus of evaluation studies to the exciting emerging services on offer in documentary heritage organisations in the UK. There is a compelling case for evaluation to address significant gaps arising from the notable absence of representation in the substantial corpus of government-funded think-tank research and evaluation studies undertaken over the last 30 years. The ‘value’ and the long-term benefits to the communities these public services provide, and the impact it delivers longer term have yet to be fully explained. There is an opportunity to redress this imbalance by lobbying funders for further research in this domain.

Scope of the project
The focus of our project addressed three interrelated aims. The study was designed to:

1. provide a narrative as a context for building resilience and therefore a more sustainable future in an increasing networked society;
2. offer recommendations to advance the way in which evidence is gathered and used to demonstrate the value of documentary heritage collections; and
3. highlight the professional culture and political relationships needed to develop an evidence-based culture for the sector.

Project methods and approach
The starting-point was to understand how different stakeholders and communities value documentary heritage and the services they offer, and how these valuations align with contemporary cultural value narratives. An initial review was undertaken of the huge canon of literature published literature over the last 30 years, with a focus on UK government-commissioned think-tank reports, as well as academic theoretical papers. The views of experienced professionals were sought as a means of gaining insight through an array of disciplinary perspectives such as history, public policy, computing science and cultural diplomacy.

In addition, extensive discussions in the form of semi-structured interviews were carried out with archivists, librarians, information specialists and in particular, those at the centre of UK based public inquiries past and present in the UK and Ireland. Public inquiries bring to the
fore the complexity of capturing, preserving and making accessible information that becomes judicial evidence. They can also highlight a misalignment between collecting practice and the public’s expectation that statutory bodies will be accountable and transparent. They offer a unique insight into a possible aspect of ‘public value’ offered by archives, and so were given additional attention.

**Context:**
Of particular interest to this study is the complex relationship that has emerged in the UK between culture, heritage and government: successive Governments have realigned the relationship of culture and heritage to supporting public policy agendas. Some three decades ago, this perennial debate gained momentum from renewed government interest in ‘valuing’ heritage and culture, and it continues with vigour today. The drivers for this initiative formed part of a broader policy programme that aimed to demonstrate a return on public investment, support and shape key policy objectives, and make the case for funding.

Over the intervening years, there have been many government-supported attempts to understand and measure the value of culture and cultural heritage to society; to explore what is valued and why, and critically, to develop appropriate metrics and mechanisms for capturing the economic and social benefits of culture offered by collecting institutions. Even a cursory appraisal of three decades of theoretical literature, reports from think-tanks and government policy papers identifies some 600 published research papers focused on culture and cultural heritage valuation: this is in addition to ongoing empirical research underway.

How we value our culture and heritage is a complex question that in one way or another threads through much of our day-to-day life. Whether it is a Minister charged with understanding the costs and benefits of a policy initiative, local authority councilors balancing the conflicting demands of public services or indeed schoolchildren engaging with collections in their local history centres, in each case ‘value’ is experienced and implicitly assessed through a variety of lenses: economic, social, intellectual, aesthetic and, of course, emotional. The breadth and depth of debate around this subject is an indication of the complexity of the seemingly simple word ‘value’ and the challenge of identifying, capturing and translating into practice the benefits derived from collections and the services they offer. This is a well-researched subject and will not be reviewed here, our aim is to highlight how services are adding value that could usefully be evaluated to determine the benefits economically and socially. Examples include:

**Demonstrating Economic Value and Impact**

- **Value of Helping Business and the Creative Economy to Grow**
  Business archives services create a unique corporate asset important for legal, marketing communications and financial decisions that give meaning and confidence to business decisions. The historical record has proved vital to informing strategic business decisions that add value to the business. [2] While underreported, design archives often provide the ‘spark’ of creativity that inspire innovation as evidence by companies such as Fortnum and Mason, Liberty, John Lewis and Standard Life, and Boots to name just a few. Evaluating the commercial capital realised through this critical resource is needed.

- **Valuing the contribution to the UKs Creative Economy**
The documentary heritage sector offers vital support to the creative economy. Documentary heritage services provide sources for the extensive literary canon that inspires our film, TV, theatre and cultural heritage experience, contributing to one of the UK’s largest exports. How effective are we at capturing the public value of the process of creativity to innovation? How well do we advocate for the documentary heritage sector’s contribution to the creative economy, and for that matter the economy as a whole? [3]

- **Value of Digital Licensing and Data**
  To serve the seemingly insatiable family history market, internet providers who license content from the documentary heritage sector, demonstrate the value of records. Ancestry, one of several commercial international reports a total profit in 2015 of $29.4 million, from annual revenues of $638 million generated by the public accessing 17 billion records. Understanding the public and social value of this resource would add a critical element to the evidence base. [4]

- **Value of Heritage Science**
  The recently published UK Government’s policy document, The Cultural White Paper, explicitly references the important role of collections both public and private contribute to society, and are major supporters of culture and undertake ground-breaking research on heritage protection and conservation. [5] Heritage science [6] is a growing discipline that can demonstrate added value through collaborations between collections and industry that are already developing products and services. For example, instrumentation for environmental management, apps for public engagement, and products that enable ways of ‘searching the unsearchable’, continue to be developed in co-operation with documentary heritage services. This produces economic value, demonstrating an impact on the UK’s creative economy and supports the key pillars of the recently published Government Industrial Strategy. [7]

**Demonstrating Public Value**

- **The importance of place**
  As civic buildings disappear, archive and library buildings are becoming an important lever to redefine as places for meeting and supporting communities through, for example, Fab Labs designed to improve digital literacy and address a very real social problem of isolation and disconnection from communities. Providing this sense of place delivers social value, how can do we capture this important social value? Services are providing programmes to support improved literacy, computer skills and innovation for all ages, thus demonstrating public value. [8]

- **The offer of health and well-being value**
  There is considerable attention currently to finding correlations between the contribution documentary heritage collections can make to the health and well-being of citizens. For example, ‘Not So Grim Up North’ is a project between University College London, Arts Council England and Tyne and Wear Archives and Museums, and is just one of many projects underway in the UK seeking to understand the correlation between health benefits for example, of experiencing collections for people living with dementia, stroke rehabilitation and addiction recovery. ‘History Boxes’ a Senate House Library initiative, works with dementia patients to develop personal memory ‘boxes’ filled with mementoes.
of personal histories and photographs. The History Box programmes are proving effective in stimulating memory and are supported by some NHS Trusts and will soon be testing the digital curation of collections. Programmes connecting collections to patient care and communities demonstrate improved well-being and value to communities, thus adding social and economic impact in the long term. The University of Sheffield’s Centre for Wellbeing in Public Policy, The National Alliance for Museums, Health and Well-being (University College London) the All Party Parliamentary Group for the Arts, are just a few examples of the considerable attention this subject is presently receiving from academic researchers, local interest groups and government.

Social Value

- **The value of social justice and trusted information**

Public inquiries such as the Hillsborough stadium disaster and child sex abuse investigations across the UK and Ireland are only possible because of the preservation of the archival record, the raw data underpinning a range of investigations. Consider the loss in trust in the public realm, and the rule of law without this evidence base? We need to demonstrate the social value of this information, and no better time as we live in a world where the rule of law is challenged and individuals and groups are under threat. Archives are uniquely valuable in demonstrating a direct impact on social justice, in that the information in collections provides public evidence for judging accountability and thus supports the upholding of the rule of law.

Academic value

- **Academic research and development**

The published outputs of UK academic research are among the highest in the world, contributing to UK innovation and growth and informing policy-making. There are numerous examples of documentary heritage professionals who have established effective collaboration with schools and universities, providing greater access to collections and thus to academic opportunities. The value of these learning experiences provides social and economic impact long term is gaining ground in the Research Excellence Framework, but less so for advocacy purposed. Documentary heritage services could demonstrate greater academic impact by, for example, widening and deepening the notion of research ‘impact’ to include influence on public engagement and culture and on teaching. These critical collection services add economic and public value.

Key Findings

**Communicating benefits**

This study found many examples of the value of documentary heritage services both to primary users who use and experience collections first hand, and to a much wider group of secondary users who benefit from the services provided by archives and libraries. The contribution these services make to the UK economy and to wider society may be significant, but evidence for their benefits and the impact derived has yet to be fully evaluated.

Yet despite the attention the subject has received in a wide range of disciplines, there is limited understanding in most collecting institutions of how to capture and use evidence consistently and use it to influence policy or improve practice.
The documentary heritage sector falls short in communicating to critical stakeholders the value and impact it provides socially, economically or academically. If there is to be a chance of a sustainable future in the face of ongoing reductions in budgets and other technological change advocating in a voice that has resonance in critical circles is key.

**Measures and metrics**

While a single measure for demonstrating the value of documentary heritage collections would be desirable, this is unlikely to emerge. It is widely agreed that metrics alone inadequately capture the value of culture, cultural experience and services; more nuanced measures are required. Evaluating what is achieved (both outcomes and outputs) is considered as important as the performance of services. Measuring outcomes and outputs is increasingly a requirement of funders, and is made explicit in the 2016 DCMS Culture White Paper. [10]

While all metrics and measures designed to evaluate value and performance exist, of which there are many, better promotion of these techniques across contexts is necessary. One notable study that emerged from the AHRC/EPSRC-funded Heritage Science programme was the research project *Collections Demography: stakeholders' views on the value of the lifetime of collections*. Significantly, this research departed from existing typologies of value, by considering how stakeholders perceive the value of archives and libraries collections in comparison with organisational perceptions of value. While the rationale for this study was concerned with using techniques to model the benefits that flow from a collection in relation to material change, thus differing in focus from the present review, key features of the project have resonance and provide a useful ‘case-history’ of the potential of stakeholders’ perceptions of value as an important strand of evidence. [11]

**Narratives and Case-studies**

While data capture and reporting provides an important strand of evidence, these cannot convey the complexity of the systems and experiences offered by documentary heritage services. In some situations narrative, or ‘story telling’ is an effective way to communicate what Brophy calls ‘sensemaking’, as a means of engaging meaningfully with some audiences. [12] There are many examples of community lectures offered by local authors and historians whose work has been based on documentary heritage research, and these in turn enable more stories to emerge, thus connecting communities to their past and present. Case-histories are often championed as a compelling strand of evidence in some contexts, indeed they can be a powerful tool for engagement and persuasion, albeit with limitations given that they cannot be generalised, scaled-up or extrapolated to other contexts.

**A compelling evidence base**

Data collection and evaluation is just one strand of a larger bundle of evidence very much needed by the sector. Discussions with Chief Executives of services and professional bodies, local authority experts and a government Minister, confirmed that defending documentary heritage services against other statutory obligations such as social services is difficult and will continue to be so. A ‘backpack’ full of stories, statistics, evaluations that can be used with authority and conviction, is required if advocacy is to be successful.
Conclusions: A strategic approach

Foster the right culture
The defence of the sector depends crucially on commonly agreed objectives, strong leadership, compelling evidence and a willingness to embrace change. Our study makes clear these desiderata are a long way off despite the very good work going on in many institutions. However, if action is not taken to consistently advocate the sector can expect dwindling resources and a continued decline in users. The days of strictly held divisions between archives and libraries are over, given that archives, libraries and local history services are all facing the same pressure of reduced budgets and the shifting expectations of users for ever more digital provision. All the focus groups and discussions supported by this project confirm there is a genuine grassroots thirst for change and a need for a policy direction to demonstrate the impact of these valuable services.

There are already some clear ways forward. The recently published UK government supported strategy, *Archives Unlocked* [13] sets out an ambitious programme to build resilience for the sector by demonstrating the impact of services through better data collection and impact evaluation. The National Archives /Research Libraries United Kingdom annual conference and a determination to improve leadership in the university library sector are other examples of change, as is the Northumbrian Conference. While these initiatives are laudable, they fall short of an unambiguous single voice for the sector as a whole, which is required to engage with important work in this area with funders and policy officers.

Establish a cross-sector task force
Given it is unlikely that a single organisation can drive this agenda, as a first step to building much needed capacity, it is recommended that a cross-sector independent task force should be set up, to include national, local, professional, government and academic experts to co-create and co-deliver a strategic plan to develop an evidence-based culture for the documentary heritage sector. This can be achieved by building on existing cross-sector activity, other evaluation studies taking place and the momentum ignited by our research.

The priority actions for the Task Force should include:

1. Upgrading skills and knowledge
Prioritise skilling up professionals in the sector to help them develop an evidence-based culture, including understanding the metrics, tools, and impact models available. They see the importance of using evidence to demonstrate the value of their services, but often feel too ill-equipped and time-strapped to mine the range of information necessary to make a case. This requires collaboration with professional bodies, as well as regional bodies, academic experts, grant-giving bodies and funders.

The aim is to encourage professionals to be more aware of, and committed to, evidence based practice, the value of assessing outcomes and impact, and evaluating stakeholder needs. It is important that local needs and priorities are addressed, while feeding into regional and national data collection.

2. Capturing data and using tools
Support development of cross-sector standards for data-capture for the documentary heritage sector, in collaboration with allied initiatives already underway, for example, Arts and Humanities Research Council’s *Understanding Cultural Values* project, the Department of Culture Media and Sport (DCMS) Library Task Force and DCMS’s Evidence Unit. The aim should be as a first step:

- Understand how users would evaluate different kinds of information and the services they need to build an evidence-based culture.
- Evaluate the usefulness of guidance and toolkits designed for evaluation and capturing impact.
- Pilot existing technologies already used by the museum sector designed to capture stakeholder experiences.
- Develop evidence-based resources through an online portal to share evaluations and disseminate research in this area.

3. **Addressing Research Gaps**

Identify the research and evaluation studies required to capture better the value added by documentary heritage services, and to track the impact of services to government, the public and researchers. The key findings of this project could usefully be taken forward as the basis of a national research strategy for documentary heritage collection.

Develop a shared research strategy and undertake advocacy on behalf of the sector to research funders to secure funds for the evaluation of the long-term impact of the documentary heritage sector.

With clear strategic objectives, effective leadership and a single voice representing the many stakeholders in this mix, an evidence-based culture can be developed as a first of many stepping stones to a sustainable future.

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Notes:

1. Documentary heritage is defined in this document as: collections as a cultural product kept in archives and libraries, or user-generated content, all the written documents created at present as well as the past that can inform future heritages. See: Ashworth & Graham (2005), p.8. The term better reflects the blurring of collections across archive and library domains, as silos between these sectors are breaking down and they are often being merged within collecting institutions, accepting that the mission of archives and libraries are different.


6. Heritage Science is a growing interdisciplinary field of research to: ‘improve preservation, access to and the interpretation of cultural heritage’. See: http://www.heritagescienceforum.org.uk/


8. See for example: http://fablabsuk.co.uk

9. Personal communication: Dr N. Barratt, Director of Collections and Public Engagement, Senate House Library, University of London

10. DCMS (2016) (Cm 9218)


Did You Find It?

The Curtin Materials Availability Survey

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Introduction

The question “are library clients able to find the materials they want in the library?” has long exercised library managers, and can be seen as a fundamental measure of performance. The systematic investigation of the reasons for non-availability was pioneered in the 1970s (Buckland, 1975; Kantor, 1976), and Kantor’s “branching method” formed the basis for numerous subsequent studies (Mansbridge, 1986; Nisonger, 2007). While early work focussed on the availability of print items, more recent studies have also sought to investigate the availability of items in electronic format (Nisonger, 2009; Crum, 2011).

Between 2005 and 2010 Curtin University Library, located in Perth, Western Australia, several times successfully ran an availability survey developed for the Council of Australian University Librarians (CAUL) (Tang, 2014, 706-707; Poll and te Boekhorst, 2007, 68). This survey depended on distributing forms to clients in the library and analysing their responses about their ability to find what they were looking for. It had the advantage of being based on actual client data, rather than, for example, bibliographies or reading lists, but by 2010 it was apparent that as an instrument it was no longer appropriate to contemporary library conditions: a large proportion of library users were now there primarily not to consult information resources, but to use the library’s computers and study spaces, and because of the expansion of online electronic delivery it was often no longer necessary for clients to come into the library in person to find information resources at all.

Accordingly, Curtin set out to develop a methodology for the online investigation of availability, and in 2013 ran a pilot survey, under the leadership of the Library’s then Associate Director, Corporate Services, Karen Tang (Tang, 2014). This entailed using a locally-written script to intercept a catalogue search in Curtin’s Primo discovery system and inviting users to participate in a survey through a pop-up window. If they agreed and indicated that they were looking for a specific item, searchers were asked to provide an email address to which a link was later provided automatically for them to complete the survey once they had looked for their item. Survey responses were afterwards verified by library staff to identify reasons that users had not found what they were looking for. The survey allowed for the possibility of clients looking for resources in either print or electronic format.

The pilot survey identified several practical issues that required resolution before it would be possible to make the Curtin Materials Availability Survey (CMAS) a regular instrument of quality control. The intercept script was written specifically for the catalogue software currently in use at Curtin and was thus not easily transferable across different catalogues or discovery systems or indeed from one version of the discovery system to the next. The invitation pop-up did not work equally well across all browsers or on mobile devices. There was necessarily a delay between when clients searched for their items and when they completed the survey, potentially reducing the effective response rate and making it difficult for library staff to proceed to a timely and reliable verification of the reported outcomes.

In 2017 Curtin conducted a follow-up to the 2013 pilot, attempting to address these obstacles and to build on earlier experience.
The 2017 Curtin Survey

Users of the library’s catalogue were selectively invited to participate in the survey through a web browser tab or window which appeared when they conducted a search using the catalogue search box on the library home page or clicked on one of the links associated with this search box. The catalogue search results screen also remained open in the browser.

Users who agreed to participate were directed to a survey created in Qualtrics. The survey asked for basic demographic information, what the client was looking for, and whether or not they found it. If they did not find their item they were asked to nominate a reason from the list below.

- The Library does not have it
- It wasn’t clear to me whether the Library has it or not
- It is available electronically but I can’t access it
- It is only available in print but I want an electronic copy
- None of the above – in this case clients were asked to provide further details

Completed surveys were emailed by Qualtrics to a generic email box, and then were analysed and coded by project team members. The analysis involved replication of searches where clients had reported not finding their item, and confirming so far as possible whether the client assessment of the failure was correct. The initial coding was subsequently reviewed, particularly in cases where the respondent gave the reason for failure as “None of the above”, and surveys were recoded to reflect both client and Library perspectives, and specifically to capture, where possible, whether or not the library held the item regardless of the client’s perception.

There were several differences between the 2017 survey and the 2013 pilot. In 2017 we did not use a pop-up but a link to a separate browser window or tab, in order to provide a more robust delivery method that would not be interrupted by software upgrades or browser security settings, and would work on a broader range of devices. For the same reasons, we preferred to link from a search box on the library home page rather than from within Primo itself. This also minimised the likelihood of clients being interrupted by multiple requests to participate if they conducted multiple searches within a single session (since after the first search from the library home page all subsequent searches would be made from inside the catalogue). We asked only about the availability of electronic items rather than print, acknowledging that the majority of our clients now prefer information in online formats – this meant that we were able to streamline the actual questionnaire considerably. We made the survey available to searchers at the time they were conducting their search on the assumption that they would look for their item and complete the survey within a few minutes. We also captured and analysed the survey data immediately, at least during office hours, to ensure that when validating users’ responses the conditions of the original search were replicated as nearly as possible. In addition we provided the opportunity for respondents to enter a draw for a small prize, and established the initiative as a research project (ethics approval HRE2016-0354) in order to allow the publication of results.

Outcomes

The survey ran over 79 hours from Monday 27 March to Thursday 30 March 2017. The survey invitation was offered 2,283 times, but the number of valid responses was only 117, a disappointingly low return rate of 5.12%. It is difficult to draw definite conclusions from the data given the small sample size. Overall, 66% of respondents reported that they had found what they were looking for, a figure that is comparable with the result we achieved in the 2013 pilot (67%), though slightly less than what was achieved in the last print-based survey, run in 2010 (74%). However, a sizeable portion of respondents who stated that they did not find what they looking for either appeared to be not looking for a specific item, did not give sufficient information to identify precisely what they were looking for, or reported that the survey mechanism had prevented them from following through on their search. It was possible to identify (and subsequently rectify) a small number of “acquisitions failures”, though some for which clients were searching were outside the library’s collection scope, such as works of popular fiction. The number of “information literacy” failures, where respondents had clearly failed to construct an appropriate search or had misinterpreted the catalogue screens, was negligible.
Lessons and Prospects

Our experience with running the CMAS highlighted several technical difficulties which are likely to have discouraged catalogue users from participating. The delivery mechanism was quite cumbersome, as the browser tab or window obscured the catalogue results screen from view, which a browser pop-up would not have done. The survey itself was quite wordy as the ethics requirements of the research project required participants to give formal consent to the data collection, and also because it needed to provide for the associated competition draw – this also required the start and end times of the survey to be predetermined with the result that we were unable to extend it to collect more responses. The decision to launch the survey invitation from the catalogue search box on the library home page rather than from within the catalogue itself had the effect of excluding users who habitually enter the catalogue either directly or from other external links. These factors could be eliminated by finding more appropriate delivery software, by collecting data for internal use only and by not providing an incentive in the form of a competition.

A further limitation resulted from the fact that we relied on searchers to re-identify the item they were looking for in the survey form, and that the data provided was often unclear or incomplete. Ideally, citations would be captured from the catalogue, or failing this the search terms and strategy used would be automatically transferred to the survey.

The survey asked for people to respond only if they were looking for a specific item and if they wanted it in electronic format. Analysis of the results, however, showed that a significant number of respondents were not in fact looking for specific items, but rather searching in general for works by a particular author or on a particular topic. Since this is a normal catalogue search activity, and one about which user satisfaction is equally important, it might be advantageous to revise the survey methodology to take into account both specific item searching and more general types of search enquiry. This would reduce the probability of catalogue users being interrupted by a survey that was not actually relevant to their current activity. It is noteworthy, and indicative of the increasingly electronic nature of the library’s collection, that no respondents seemed to indicate that they would have preferred to locate their item in print.

More generally, however, the low response rate suggests that this type of survey may not be the most comprehensive or reliable way to collect information about clients’ ability to find the materials they are looking for. Surveys and feedback forms are now ubiquitous in the web environment, perhaps leading to “survey fatigue”. Other library surveys have also recently been showing diminishing returns, and even the print-based availability surveys run by Curtin between 2005 and 2010 showed a progressive reduction in the number of respondents. Perhaps the use of catalogue or discovery system logs or analysis of data recorded in enquiry management systems would provide for a more complete solution.

Conclusion

Whether or not clients can find what they are looking for in the library remains an essential question. There are still, however, significant practical obstacles to collecting comprehensive, empirical, user-focussed data which can be used to ascertain exactly why some users do not find what they are looking for and to inform corrective action. With further development, initiatives such as CMAS have the potential to provide useful input in this area which can be used alongside analytic data produced directly from discovery systems themselves.
References


1 Introduction
The aim of this study is to estimate the relationship between distance and demand for library use. The research offers three main contributions. Firstly, the findings extend the gravity modelling literature in economics by analysing the distance effect at a much smaller scale than previously. Secondly, the results provide an estimate of local consumer demand that can be used in practice by local businesses and in further research. Finally, university students’ library use patterns are described, which may be of interest to the wide academic community.

In economics, distance traditionally features in gravity models. Gravity models are especially popular in the trade literature, where they describe trade flows as a relationship between the sizes of countries and distance between them. Despite popularity, gravity models have so far been applied to large scale flows like trade between countries. Therefore there is limited evidence on how gravity behaves at short distances. This study will contribute to the understanding of gravity at micro scale by analysing University of Oxford students’ choice of libraries. The analysis follows the work of Hillberry and Hummels (2008) on trade frictions at small scale.

The distance elasticity estimates of this study can add to the understanding of consumer behaviour across space, which is an essential research topic in retail, marketing and industrial location literature. A key advantage of the estimates is that they are based on data that include both start and end points of consumers. The dataset is formed of University of Oxford student entries into Bodleian libraries. The collegiate system and the network of libraries allow distances to be accurately estimated as student entries are recorded by library entry control and students’ home addresses are inferred from their college affiliation.

The application of the gravity model describes daily student flows from colleges to libraries. Based on trade gravity model literature recommendations, the relationship is estimated using least squares controlling for college and library fixed effects. The base estimation results indicate a distance elasticity of -0.29 and an exponential distance decay curve. Distance is a significant factor in students’ choice of libraries and the elasticity implies that on average an 83 m increase in distance would correspond to a loss of about 20 students for a library per day.

2 Data and Descriptive Statistics
Combined with the collegiate system, the University of Oxford network of libraries provides an interesting setting for gravity analysis at short distances. The library network consists of 32 Bodleian, 41 college and 32 other University libraries (Bodleian Libraries, 2017b). The Bodleian libraries are affiliated with the University with a mission to support the teaching, learning and research at the University and to preserve access to the unique collections (Bodleian Libraries, 2017c). The group includes research, faculty and departmental libraries. The principal library is called the Bodleian library, a legal deposit library and the second largest library in the UK (Bodleian Libraries, 2017a). Under the University’s collegiate system, students and academics are part of both the University and one of the 44 colleges and halls. The University is responsible for the overall organisation of courses and providing research resources. Colleges and permanent private halls, which have retained their religious foundations, are interdisciplinary academic communities. Both provide accommodation, meals and common rooms to their student and academics. They also manage their own libraries. (University of Oxford, 2017b). In the context of gravity analysis, colleges and libraries can be thought of economic entities having mass and exchanging student flows.
2.1 Dataset

The dataset consists of entry records into Bodleian libraries in Oxford and is new to academic literature. The major advantage of this data is the possibility of locating consumers' starting points (students' living addresses) and end points (the use of library services). Measuring the exact distance at small scale makes it possible to avoid potential aggregation bias.

Nine Bodleian libraries record visitor entries. As visitors swipe their reader or university cards through entrance gates, their time of entry and unique card number are recorded and stored in one of the entry databases managed by the Bodleian. The data available for this project includes entries from 4 libraries: Bodleian Law Library (BLL), Bodleian Old Library Complex (BOD), Social Sciences Library (SSL) and Radcliffe Science Library (RSL). These libraries have recorded entries since 2013, so the time in the dataset spans from 1st of August 2013 to 31st August 2016. The entry system of these 4 libraries records the students’ university card numbers directly making it straightforward to identify students’ colleges from information held by the Student Records. The other 5 libraries recording entries do so under a different system.

Unfortunately, the matching of these entries with student information was not ready at the time of writing, so their data could not be used for this project. However the available data on BLL, BOD, SSL and RSL give a good representation of the Bodleian libraries. BOD is the main library of the group and is also the largest and most central of the Bodleian libraries, while RSL and SSL rival or even exceed the BOD in daily student visits. The 4 libraries also represent a good variety of subjects: BLL, SSL and RSL specialise in materials for law, social sciences and natural sciences respectively and the Radcliffe Camera, part of the main Bodleian library complex, is used by the History Faculty.

To identify Oxford University students from all the entries, card number from entry was searched within University Student Records. The Student Records provide information on students’ college, department, division and year of study, but this database holds information only on the current University of Oxford students. Thus if the card number was not found within the Student Records, student information from the Bodleian internal database was used if available.

Distance in the data was measured as the shortest walking distance between a college and a library given by Google Maps. The addresses of the libraries and colleges proposed by the application were used. This method of measuring distance assumes that students would live at college main site. Therefore, the sample was refined to only include first year undergraduate students at Oxford University. At Oxford, colleges provide accommodation on main sites or close by for all undergraduates in their first year (University of Oxford, 2017a). For 31 out of the 35 colleges and permanent private halls accepting undergraduates, first year students are housed on the main sites (Oxford University Student Union, 2016). It is therefore a reasonable assumption that most first year undergraduate students live at their college main sites.

There are about 1,951,000 observations in the raw dataset of which about 1,346,000 observations are student entries. Trimming to only first year undergraduate students, 430,000 entries from 12,695 unique card numbers are left. To conform with a gravity analysis this data was then aggregated to describe daily student flows from colleges to libraries so that the cleaned dataset contains 70,675 daily college-library student flows.

2.2 Libraries and student entries

Table 1 describes the average distance from colleges to libraries. From the 4 main libraries, the BOD is the most central library with a 612 m average distance to colleges. SSL is the most distant library, on average 1027 m away from colleges.

Looking at first year undergraduate visits in table 2, the RSL is the most popular library with 97 unique undergraduate entries per day. The BLL is least busy with 31 average daily undergraduate entries. Comparing the libraries using the average daily student flow per college, the former pattern persists with RSL receiving almost 5 and BLL around 2 students per college in a day. BOD and RSL are most diversified libraries in terms of college visits as both receive students from 21 different colleges per day on average. BLL is connected to about 14 colleges daily.

As expected, the libraries attract students from the academic divisions for which they hold specialised materials. Figure 1 shows that BLL and SSL are mostly used by social science students, humanities students favour the BOD and RSL is most popular with mathematical, physical and life science students. Figure 2 plots the average number of entries into the libraries by hour and reveals interesting differences in the most popular entry times. 10 am is the peak entry hour for BLL, 11 am for RSL, 12 pm for BOD and 1 pm for SSL. The BOD usage pattern seems to have two peaks: the first in the morning at 8 am.
after which visits peak again between 12 pm and 1 pm. RSL also tends to get most visits early during the day as the most popular entry hours are between 9 am and 1 pm, whereas SSL tends to get more entries later in the afternoon, between 1 pm and 4 pm. These patterns are likely to be related to the timing of classes and lectures that might be organised within the libraries.

### Table 1  Average distances to libraries (m)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOD</td>
<td>612</td>
<td>398</td>
<td>120</td>
<td>1800</td>
</tr>
<tr>
<td>RSL</td>
<td>714</td>
<td>276</td>
<td>210</td>
<td>1700</td>
</tr>
<tr>
<td>BLL</td>
<td>971</td>
<td>349</td>
<td>133</td>
<td>1920</td>
</tr>
<tr>
<td>SSL</td>
<td>1027</td>
<td>390</td>
<td>120</td>
<td>2000</td>
</tr>
</tbody>
</table>

### Table 2  Average undergraduate student flows to libraries

<table>
<thead>
<tr>
<th></th>
<th>BLL</th>
<th>BOD</th>
<th>SSL</th>
<th>RSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average daily visits</td>
<td>31.1</td>
<td>72.2</td>
<td>67.5</td>
<td>97.4</td>
</tr>
<tr>
<td>Average daily visits per college</td>
<td>2.25</td>
<td>3.44</td>
<td>3.46</td>
<td>4.66</td>
</tr>
<tr>
<td>Average daily number of colleges</td>
<td>13.8</td>
<td>21</td>
<td>19.6</td>
<td>20.9</td>
</tr>
</tbody>
</table>
Plotting daily entries over time in figure 3 reveals strong termly pattern in the usage of libraries. The academic year in Oxford is divided into three terms of 9 weeks: Michaelmas, Hilary and Trinity. During the time period of the dataset, Michaelmas generally spans from 1st of October to 17th of December and Hilary begins 7th January and ends around 25th of March. Trinity is the last term of the year beginning around the 20th of April and ending the 6th of July and is the term during which most of university exams are organised. The 4 libraries and most noticeably the RSL and BLL experience visitor spikes during the first days of terms. For RSL and BLL the highest visitor peaks occur in the first term of the year, Michaelmas. BOD and SSL, on the other hand, experience their busiest days during Trinity term. BOD is one of the closest libraries to the Examination Schools, where the exams are held, which probably contributes to its popularity during Trinity term. As figure 3 shows, the visits to BLL during 2015-2016 academic year look much lower than in previous years. During this time the BLL experienced major renovation works that began in September 2015 and finished in November 2016. The pattern in figure 3 suggests the renovation works had a noticeable effect on law library visits.
Figure 3  First year undergraduate entries over time
3 Methodology

The gravity model is chosen as the main tool for the analysis of demand for library services for two main reasons: its prevalence in the literature and the lack of evidence on gravity at small distances. In current context the gravity is used to describe daily student flow from a college \( c \) to library \( l \), \( V_{cl} \), as a relationship between the sizes of college and library, \( Y_c \) and \( Y_l \), and the distance between them, \( D \):

\[
(1) \quad V_{cl} = \frac{Y_c Y_l}{D}.
\]

Taking logs:

\[
(2) \quad \ln(V_{cl}) = \beta_c \ln(Y_c) + \beta_l \ln(Y_l) - \delta \ln(D)
\]

To estimate gravity equations, trade literature has concluded that simply applying least squares on the log of the gravity relation is not enough. Head and Mayer (2014) advocate for the use of fixed effects estimation. Fixed effects is a suitable method in this context as well. Since the time frame of the data is 3 years, it is expected that many key influences of libraries and colleges on student flows would be time invariant. To account for different time effects, controls for day of the week, term, and year are also added. In addition, the main specification includes interaction terms between the libraries and the proportion of visits from the 5 subject divisions: continuing education division, humanities division, mathematical, physical and life sciences division, medical sciences division and social sciences division. These are intended to control for the overall tendency of students to use the library specialised in their subject. The main empirical specification is therefore:

\[
(3) \quad \ln(V_{cl}) = \theta_c + \varphi_1 \delta \ln(D) + \beta_{day} weekday + \beta_{term} term + \beta_{year} year + \beta_{prop} \text{prop}_{cl} \times \text{library}_{cl} + u_{cl}
\]

where \( \theta_c \) and \( \varphi_1 \) are controls for college and library fixed effects, respectively, \( \text{prop}_{cl} \) refers to the daily proportion of students from college \( c \) that are in division \( d \) and \( u_{cl} \) is the stochastic error term. The parameter of interest is \( \delta \), which measures the distance elasticity of student flows from colleges to libraries.

4 Main results

Column 1 in table 3 displays the main regression results of equation 3 and the full results are presented in table 5 in Appendix. The distance elasticity is -0.29 and is significant at 1% level. Based on elasticity of -0.29, table 4 computes the implied changes in student numbers for a 10% increase in the average distance between libraries and colleges. For a 97 m increase in distance, BLL would lose about 9 students daily, BOD would lose 21 students for a 61 m increase, RSL 28 students for a 71 m increase and SSL 20 students for a 103 m increase. Taking an average for these libraries, an increase in distance of about 83 m corresponds to a loss of about 20 students per day.

The absolute value of the found distance elasticity is significantly smaller than 1. The hypothesis test on equality yields a t-statistic of 101.9. The distance effect on student flows is thus smaller than the distance elasticity found in conventional trade gravity estimations that are close to -1 (e.g. Disdier and Head, 2008; Head and Mayer, 2014).

The coefficients on interaction terms between libraries and the college proportion of students studying within a specific division are shown in table 5 in Appendix. These coefficients should be interpreted with continuing education division being the base group. F-tests reveal expected library use patterns: BLL tends to attract more social science students from colleges relative to other divisions and RSL is used most intensively by medical sciences students and least intensively by humanities students. For BOD there are no statistically significant differences between the size of student flows and the proportion of students from the 4 major divisions. Somewhat surprisingly, student flows to SSL are positively correlated with proportion of visits from medical and mathematical sciences divisions. This could indicate that on busiest days SSL attracts students from diverse divisions, not only from its most frequent social science division.
Table 3 Regression results

<table>
<thead>
<tr>
<th></th>
<th>(1) ln ($V_{cl}$)</th>
<th>(2) co-ordinates$^a$</th>
<th>(3) before 10 am$^b$</th>
<th>(4) after 10 am$^c$</th>
<th>(5) ln ($V_{cl}$ +1)</th>
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<tr>
<td>ln (distance)</td>
<td>-0.292***</td>
<td>-0.275***</td>
<td>-0.149***</td>
<td>-0.282***</td>
<td>-0.134***</td>
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<tr>
<td></td>
<td>(0.00695)</td>
<td>(0.00695)</td>
<td>(0.00695)</td>
<td>(0.00695)</td>
<td>(0.00695)</td>
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<td>Michaelmas</td>
<td>0.784***</td>
<td>0.782***</td>
<td>0.226***</td>
<td>0.704***</td>
<td>0.729***</td>
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<tr>
<td></td>
<td>(0.00847)</td>
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<td>(0.00954)</td>
<td>(0.00828)</td>
<td>(0.00449)</td>
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<td>Hilary</td>
<td>0.771***</td>
<td>0.770***</td>
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<td>(0.00866)</td>
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<td>0.745***</td>
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<td></td>
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<td>(0.00897)</td>
<td>(0.00800)</td>
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<tr>
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<tr>
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<td>0.349***</td>
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<td>(0.0222)</td>
<td>(0.00962)</td>
<td>(0.00669)</td>
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<td>Fri</td>
<td>0.353***</td>
<td>0.353***</td>
<td>0.255***</td>
<td>0.211***</td>
<td>0.306***</td>
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<td></td>
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<td>(0.00976)</td>
<td>(0.0223)</td>
<td>(0.00967)</td>
<td>(0.00664)</td>
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<td>-0.0998***</td>
<td>0.0489***</td>
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<td>70,675</td>
<td>29,263</td>
<td>66,105$^d$</td>
<td>138,880</td>
</tr>
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<td>0.273</td>
<td>0.405</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Divisions$^e$</td>
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<td>Yes</td>
<td>Yes</td>
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<td>No$^f$</td>
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Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1

a) Distance is measured as the length of the ray between college and library co-ordinates
b) Regression on student entries between 6am and 10am
c) Regression on entries between 11am and 5am
d) Afternoon entries are counted as the first entry of the day, so observations in 3 and 4 do not sum to 70,675
e) Interaction terms between library dummies and the proportion of student visits from the 5 academic divisions
f) It was not possible to calculate the division proportions in colleges for all the missing flows
Table 4  Change in student numbers from a 10% increase in average distance between libraries and colleges

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The time coefficients reveal interesting library use patterns. The term variables indicate that, on average, the student flows are greatest during Trinity term. F-tests indicate that the differences between terms are all statistically significant at least at 10%. The greater student flows during Trinity could be due to the preference of students to study in libraries in preparation for the exams at the end of that term. F-tests also reveal that the day of the week effects are statistically different at 1%. On average, Monday seems to be the most intense day for library use with the student flows declining each day closer to the weekend. Curiously, Saturday has even smaller student flows on average than Sunday. The coefficients on year variables (see table 5 in Appendix) indicate growth in the average size of daily student flows every year and are also statistically different from each other at 1% level.

To investigate how the distance elasticity varies across space, dummy variables for distance categories of 200 m were created and added to the regression. Figure 4 presents the regression coefficients on the distance categories graphically. Figure 4 depicts a clear linear relationship and a fitted OLS line gives a slope of -0.11. Since the dependent variable is in logs while the distance dummies are not, the linear decline in the coefficients implies an exponential decay function for the student flows. The magnitude of the slope implies that every additional 200 m reduce the student flows by about 10.4 %. To interpret the individual coefficients they should be compared to the omitted reference category of distances greater than 2000 m. Thus, at less than 200 m, there are on average 3.5 more students per college visiting a library in a day compared to distances greater than 2000 m. For a rough estimate on total visits, given that the average number of colleges represented in a library in a day is around 19, libraries can attract approximately 67 students more from shortest distances than longest distances daily.

To investigate the validity of results, a few robustness checks were performed. Column 2 of table 3 displays the regression results using an alternative measure of distance: the length of the ray between library and college co-ordinates. The magnitude of the distance elasticity falls to -0.275. However, the walking distance remains the preferred measure of distance, since we expect the co-ordinate rays to underestimate the true distance as they do not take into account the street layout of the city.
To explore the assumption that students’ starting point is their college, the sample is divided into entries before and after 10 am. Generally the first classes in Oxford University are organised at 9 am, so all entries after 10 am might be originating outside colleges. Column 3 and 4 in table 3 display the sub-sample regression results. In both cases, the distance elasticity is still significant at 1 % level, but in the morning sample its magnitude is halved from the original estimate to -0.15. Figure 5 in Appendix presents the coefficients on the distance category dummies from the early entry sample regression. Compared to original estimates, the new magnitudes are about half of the original, with -0.062 the slope of an OLS fit line. However, the linear decline of the distance coefficients is preserved, which gives confidence that the underlying relationship between distance and student flows is described by an exponential decay function.

It is possible that students in the two samples differ or that distance has different weight on the choice of library during different times of the day. For example only the most motivated students, for whom distance matters less, might enter the libraries in the morning. This would be reflected in the smaller early-entry coefficient. Or it could be that in the morning students wait for events to which they are committed to (e.g. classes). Then distance from the library to the committed venue is more important than the distance from their college to the library. It might also be the case that in the afternoon distance becomes more important for the choice of library. Students might choose libraries closer to their colleges, because they go back to colleges during the day (e.g. for lunch).

A classic problem for estimating the gravity relationship using logarithms is that 0 flows are excluded from the estimation. As Head and Mayer (2014) explain, dropping the 0 observations may lead to selection bias and propose some sophisticated methods to deal with 0 flows that are beyond the scope of this project. A simple robustness check is performed instead, where the student flows are transformed into ln(V_{ci} + 1). This transformation is arbitrary, but can provide some indication of possible issues. Column 5 in table 3 presents the results. The distance effect is still statistically significant, but its magnitude declines to -0.134. One possibility for the decline is that the 0 flows occur disproportionately at larger distances, which would cause the original sample to overestimate the distance effect. Figure 6 in Appendix plots the histogram for distances that have 0 flows and suggests that they seem to occur quite evenly across distances. Therefore, it is not clear why
the magnitude of the distance effect declines. To improve the analysis in the future, alternative estimation methods to the \( \ln(V_{ci} + 1) \) transformation could be considered.

5 Conclusion

This study investigated consumer behaviour across space by analysing students’ library choices. Drawing upon the organisation of the University of Oxford that includes several libraries and colleges, it was possible to create a dataset that includes both the starting and end points of consumers, overcoming a key challenge for research on consumer behaviour. Using data on students’ use of libraries within a city also provides the opportunity to analyse economic flows on a small enough scale to avoid aggregation bias.

The student flows from colleges to libraries were analysed using a gravity model, traditionally applied to aggregate trade flows in economics literature. This provides new evidence on the economic gravity relationship at small scale. The results suggest that the empirical regularity of a -1 distance elasticity found in trade gravity is not replicated at small scale. Another important finding of this study is the non-parametric relationship between distance and economic flows described by an exponential distance decay curve.

The main results of this paper also provide an estimate of local consumer demand. The findings suggest that distance is a significant factor in students’ choice of libraries and that the distance elasticity of daily student flows is about -0.29. This implies that on average, an 83 m increase in distance corresponds to a loss of about 20 students for a library per day. This study also provided descriptive statistics on students’ use of university libraries that can be of interest to the wide academic community.

References


### Table 5: Detailed regression results

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<tr>
<td></td>
<td>(0.00925)</td>
<td>(0.00927)</td>
<td>(0.0110)</td>
<td>(0.00912)</td>
<td>(0.00517)</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>2015</td>
<td>0.0820***</td>
<td>0.0799***</td>
<td>0.0407***</td>
<td>0.0688***</td>
<td>0.0117**</td>
<td></td>
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<td>(0.0111)</td>
<td>(0.00932)</td>
<td>(0.00523)</td>
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</tr>
<tr>
<td>2016</td>
<td>0.166***</td>
<td>0.162***</td>
<td>0.0811***</td>
<td>0.144***</td>
<td>0.0851***</td>
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<td></td>
<td>(0.0108)</td>
<td>(0.0108)</td>
<td>(0.0125)</td>
<td>(0.0107)</td>
<td>(0.00627)</td>
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<tr>
<td>Observations</td>
<td>70,675</td>
<td>70,675</td>
<td>29,263</td>
<td>66,105</td>
<td>138,880</td>
<td></td>
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<td>R²</td>
<td>0.310</td>
<td>0.305</td>
<td>0.146</td>
<td>0.273</td>
<td>0.405</td>
<td></td>
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<tr>
<td>College FE</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td></td>
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</tr>
</tbody>
</table>

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

a) Interaction terms between library dummy and the proportion of college visits from an academic division
Figure 5  Distance coefficients of regression on sub-sample of entries before 10 am

Figure 6  Distance histogram for 0 student flows
Electronic information usage in a social sciences research organisation
– A value assessment of library services and -resources.

Laetitia Louw

Human Sciences Research Council, South Africa

Prof David Ellis

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Introduction

The global economic downturn experienced by many countries across the world impacts on every economic sphere – including, of course, the library and information services (LIS) sector.

This article is based on the research conducted to inform a Master’s Dissertation in 2016 (Louw, 2016). The focus of research for this study was developed during times of economic constraints. Challenges such as the retention of subscribed resources were experienced. Questions emerged, such as: are these subscriptions critically necessary in a world where everything is deemed to be free via the internet? Are the services currently offered by the LIS relevant, cost effective and used? Should current library services be adjusted to become more relevant to the community they serve?

The growing popular belief about “free” availability of information on the web leads to perceptions that libraries no longer have a reason for existence. The LIS sector needs to re-invent itself. Services and resources should be shaped and adjusted to enable easier access to accredited, trusted, high-quality information. Libraries no longer are the “custodians of information” (Saracevic and Kantor, 1997) – they need to be equipped to facilitate trusted information resources. They need to develop skills to enable value-adding services such as assistance in research or study processes, curate data, create spaces, assist with authorship issues, etc. It is critically necessary to remain relevant towards patron needs. Continuous impact assessment of services and resources needs to be conducted regularly to enable full adherence to the needs of the community the Library serves.

Roswitha Poll and Phillip Payne remarked back in 2006 already, that Libraries should assess the impact of its services to the communities it serves, and should not focus on (and be pleased with) the quantity of use and quality of performance alone. (Poll and Payne, 2006). Boyd Hendriks and Ian Wooler concurred with this point of view, by indicating that libraries might be closed down, not because of its inability to render good service, but due to its inability to demonstrate cost-effective impact (or return on investment) to the organisations, they serve (Hendriks and Wooler, 2006).

For so many years, libraries have attempted to gather some form of “evidence” to prove a monetary value to their organisations. These attempts included return on investment studies, statistics of usage of services to prove a need thereof, needs assessment studies to test the perceptions (of LIS services and resources) by the communities they serve, etc.

This paper will report on the uptake of library-subscribed resources, as reflected in the research output of the Human Sciences Research Council (HSRC) in South Africa. The HSRC, a non-teaching research organisation in South Africa, conducts policy-driven research focused on the public sector. The Council receives an annual grant from Parliament, which constitutes 60% of its income. The rest of its income is raised through national and international funders. Strict publishing performance targets determine qualification for these funding opportunities. These targets include publishing in accredited, peer-review journals, peer-reviewed books, and conference proceedings.

The HSRC Library and Information Services (HSRC LIS) subscribes to accredited high-impact resources, to enable the community they serve to adhere to the demands of these performance indicators. This research project thus attempted to
indicate the percentage uptake of accredited, high-impact subscribed resources. The findings of the quantitative citation analysis were substantiated by a qualitative information seeking behaviour study, to enable an understanding of how the researchers in this organization obtain their information.

The purpose of this study was to investigate the value of the role played by the LIS in the HSRC, to assist researchers of the organisation to adhere to one of the core values of the HSRC: “...Use its parliamentary grant and other public funds to undertake and promote research that will benefit all South Africans, particularly marginalised groups, and promote human well-being and the achievement of social justice.” (Human Sciences Research Council. Integrated Annual Report. 2015/16, 2016)

Literature review

The literature review commenced with background readings on value impact assessment studies of Library services in general. Various authors published rich articles in this respect, and these readings established a solid knowledge base in preparation for the research project. Value in use studies were well defined and conceptualised by authors such as Christine Urquhart (Urquhart, 2015), Tefko Saracevic and P B Kantor (Saracevic and Kantor, 1997) Carol Tenopir and Donald King (Tenopir and King, 2007) as well as Roswitha Poll and Philip Payne (Poll and Payne, 2006).

Further research focussing on value studies of Library and Information Services, was also well documented by authors such as Sharon Markless and Donald Streatfield (Markless and Streatfield, 2006), Roxanne Missingham (Misingham, 2005) and Alice Daugherty (Daugherty, 2015). Journals focussing on the evaluation of performance, and impact measurement in the LIS sector, emerged Evidence-based library and information practice; Performance measurement and metrics; The bottom line, which highlights the deep understanding in the LIS sector for the importance of value, impact and performance reporting.

Roxanne Missingham’s 2005 review article clearly illustrated that more and more Libraries understand that mere quantitative reporting on usage, or services, might not prove the actual value of Library services or the benefits of these services to financial managers and decision makers. (Misingham, 2005)

Betsy Kelly et al pointed out that Library impact should be reported to the financial administrators in a language that they understand (Kelly, Hamasu, and Jones, 2012). Roswitha Poll and Philip Payne asked four questions to illustrate this important theory: “Does investments in Libraries represent value for money? Are these tangible, demonstrable effects arising from library use? Could these effects be achieved without the existence of the library? And, do these effects serve the goals of the funding institution”? (Poll and Payne, 2006)

In their 2006 book: “Evaluating the impact of your library”, Sharon Markless and David Streatfield corroborated these thoughts by a discussion of traditional Library impact reporting which focussed on illustrating Library efficiency through provision of statistics on number of requests attended to, number of Interlibrary Loan requests attended to, number of visitors, etc. They pointed out that modern reporting strives to report on the (cost) effectiveness of Library services. (Markless and Streatfield, 2006). Roswitha Poll and Philip Payne argued that these traditional measures of impact reporting do not prove that users of Library services and resources necessarily benefitted from those services, or, that the organisation gained a return on their investment (Poll and Payne, 2006).

Various methodologies for value reporting were discussed in the literature, by authors such as David Brown and Bernard Dumouchel (Brown and Dumouchel, 2007) and Roxanne Missingham (Misingham, 2005). Mixed methodologies were discussed by Roswitha Poll and Philip Payne (Poll and Payne, 2006) and Carol Tenopir (Tenopir et al., 2010).

David Brown and Bernard Dumouchel emphasised the importance of qualitative information seeking behaviour studies during current times of fast advancement in the ICT field. They emphasised the importance of the fact that Libraries need to understand what their users want, and how they go about finding what they want (Brown and Dumouchel, 2007). Tefko Saracevic and P B Kantor supported this notion, by emphasizing the importance of keeping track with the “information society” (Saracevic and Kantor, 1997).
Due to the fact that the research for this study was conducted in South Africa, the author extended the literature search for information on value assessment of information services, and information seeking characteristics of researchers in developing countries, and Africa. Here, S O Popoola’s paper proved to be very useful as it reported on the use of information sources and services by social science and humanities students and its effect on the research output at a Nigerian University (Popoola, 2008). Mohammed Nasser Al Suqri’s investigation focused on developing countries, and more specific, middle-eastern Universities (Al-Suqri, 2011). He found that information seeking behaviour is universally applicable, irrespective of region.

Solid evidence that supports the mixed methodological approach followed in this investigation, were retrieved. The papers that best corroborated the method of a quantitative citation analysis and the substantiation there-of by a qualitative information seeking behaviour investigation, was a 2008 paper by Faye Miller (Miller, 2008) as well as a paper by Denise Pan (Pan et al., 2013). Miller analysed research proposals as developed by researchers of various ranks, she then proceeded with face-to-face interviews with the authors, to develop an understanding of their information seeking characteristics. Pan et al analysed reference lists in published journal articles, to determine the usage of library subscribed journals. They then followed with a qualitative survey investigation, to determine the information seeking behaviour of the authors.

Methodology

The research conducted for this study followed a mixed methodology. The uptake of paid-for subscribed electronic resources was measured through a quantitative analysis of the reference lists of the research output of the HSRC, published during the period: 2010 to 2014. Thereafter, the outcome of the quantitative citation analysis was substantiated by a qualitative interview investigation of the information seeking behaviour of the authors/researchers of the analysed papers.

It attempted to prove that the HSRC LIS, through its subscriptions to accredited, high-impact electronic journals, indirectly contributed to the quality of the research output of the organisation. The organisation receives a parliamentary grant on annual basis and the research output is a very important performance indicator in this process. The LIS is also funded by this annual grant, and with this research project, the author attempted to demonstrate to what extent our subscribed resources contributed to the value of the research output.

The research questions as reported in the Dissertation (Louw, 2016) were:

- How is the uptake of paid-for resources reflected in the reference lists of research outputs?
- What is the information seeking behaviour of the author/researchers of identified papers?
- Has information literacy training impacted the information seeking behaviour of the authors/researchers?
- Did the Information Consultant (Liaison Librarian) play a significant role in addressing the need for information support?

These research questions lead to the following hypothesis:

“to prove that the HSRC Library and Information Services has a significant impact on the successful delivery of the research output of the HSRC through its collection development strategies, and subscriptions to value-adding resources” (Louw, 2016)

Quantitative citation analyses

Population and sampling

The population for the quantitative citation analyses was the Research Output collection of the HSRC, with its population target: 2010 to 2014. Certain exclusions had to be applied: Client reports, due to the fact that these are restricted; Research Outputs of which the authors are no longer present in the organisation; Book reviews; HSRC Review articles; and Conference/seminar papers.

Random probability sampling, as supported by Lynn Connaway and Ronald Powell (Connaway and Powell, 2010) were applied for this study. This method allowed each element of the population an equal chance to be included in the sample.
Microsoft Excel’s random sampling tools were used (Zaiontz, 2017). Alan Bryman’s representative sampling technique was applied to select 5% of the research output papers after the excluded ones were removed. The following number of documents were subsequently selected for analysis:

- **2010** – Total research output selected: 561. Number of outputs selected: 29
- **2011** - Total research output selected: 443. Number of outputs selected: 23
- **2012** - Total research output selected: 460. Number of outputs selected: 23
- **2013** - Total research output selected: 483. Number of outputs selected: 25
- **2014** - Total research output selected: 469. Number of outputs selected: 24

(Louw, 2016)

**Procedure**

A manual procedure was followed to categorise citations as follows (as illustrated in Table 1):

- **Total number of references cited (Includes books, journal articles, grey literature)**
- A total number of journal articles cited.
- A total number of books (including eBooks) cited.
- A total number of other resources cited (grey literature) - including online resources.
- A total number of references cited available in HSRC collection.
- A total number of journal article citations in HSRC subscribed collection.
- A total number of books or eBooks cited available in HSRC Collection.
- Total percentage of citations linked to HSRC.
- Percentage uptake of HSRC subscribed journal collection.
- Percentage uptake of HSRC book-collection.

---

### Table 1: Example spread sheet of data for 2014

<table>
<thead>
<tr>
<th>Record number</th>
<th>Total number of references cited (includes books, journals, grey literature)</th>
<th>Total number of journals cited</th>
<th>Total number of books or eBooks cited</th>
<th>Total number of other resources cited (grey literature) - including online resources</th>
<th>Total number of references cited available in HSRC collection</th>
<th>Total number of journal citations in HSRC subscribed collection</th>
<th>Total number of books or eBooks cited in HSRC Collection</th>
<th>Total uptake of HSRC journal collection</th>
<th>Total uptake of HSRC book collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>123</td>
<td>396</td>
<td>8</td>
<td>9</td>
<td>56</td>
<td>88</td>
<td>7 vaccines 62.6% 61.9%</td>
<td>55 vaccines 58.7% 56.3%</td>
<td>23 vaccines 71.4% 70.0%</td>
<td>42 vaccines 15.0% 15.0%</td>
</tr>
<tr>
<td>124</td>
<td>280</td>
<td>12</td>
<td>0</td>
<td>8</td>
<td>6</td>
<td>2 vaccines 32.7% 30.2%</td>
<td>5 vaccines 47.1% 44.7%</td>
<td>14 vaccines 71.4% 70.0%</td>
<td>20 vaccines 25.0% 25.0%</td>
</tr>
<tr>
<td>125</td>
<td>178</td>
<td>18</td>
<td>1</td>
<td>13</td>
<td>9</td>
<td>1 vaccines 54.8% 52.4%</td>
<td>13 vaccines 81.8% 80.4%</td>
<td>28 vaccines 71.4% 70.0%</td>
<td>29 vaccines 25.0% 25.0%</td>
</tr>
<tr>
<td>126</td>
<td>346</td>
<td>21</td>
<td>3</td>
<td>21</td>
<td>9</td>
<td>2 vaccines 52.4% 50.0%</td>
<td>19 vaccines 82.6% 82.6%</td>
<td>43 vaccines 71.4% 70.0%</td>
<td>44 vaccines 25.0% 25.0%</td>
</tr>
<tr>
<td>127</td>
<td>267</td>
<td>18</td>
<td>1</td>
<td>15</td>
<td>9</td>
<td>1 vaccines 34.6% 32.2%</td>
<td>14 vaccines 71.4% 70.0%</td>
<td>28 vaccines 71.4% 70.0%</td>
<td>29 vaccines 25.0% 25.0%</td>
</tr>
<tr>
<td>128</td>
<td>267</td>
<td>18</td>
<td>1</td>
<td>15</td>
<td>9</td>
<td>1 vaccines 34.6% 32.2%</td>
<td>14 vaccines 71.4% 70.0%</td>
<td>28 vaccines 71.4% 70.0%</td>
<td>29 vaccines 25.0% 25.0%</td>
</tr>
<tr>
<td>129</td>
<td>186</td>
<td>18</td>
<td>1</td>
<td>15</td>
<td>9</td>
<td>1 vaccines 34.6% 32.2%</td>
<td>14 vaccines 71.4% 70.0%</td>
<td>28 vaccines 71.4% 70.0%</td>
<td>29 vaccines 25.0% 25.0%</td>
</tr>
<tr>
<td>130</td>
<td>126</td>
<td>15</td>
<td>1</td>
<td>13</td>
<td>9</td>
<td>1 vaccines 34.6% 32.2%</td>
<td>14 vaccines 71.4% 70.0%</td>
<td>28 vaccines 71.4% 70.0%</td>
<td>29 vaccines 25.0% 25.0%</td>
</tr>
<tr>
<td>131</td>
<td>393</td>
<td>30</td>
<td>2</td>
<td>20</td>
<td>9</td>
<td>2 vaccines 66.7% 64.3%</td>
<td>18 vaccines 78.3% 76.0%</td>
<td>47 vaccines 71.4% 70.0%</td>
<td>48 vaccines 25.0% 25.0%</td>
</tr>
<tr>
<td>132</td>
<td>240</td>
<td>58</td>
<td>3</td>
<td>33</td>
<td>14</td>
<td>1 vaccines 75.0% 72.6%</td>
<td>22 vaccines 88.0% 86.7%</td>
<td>50 vaccines 71.4% 70.0%</td>
<td>50 vaccines 25.0% 25.0%</td>
</tr>
</tbody>
</table>

Total uptake 889 527 166 196 487 421 59 54.8% 79.9% 35.5%  (Louw, 2016)
Challenges

The first challenge was encountered during the pilot phase of the project: The author realised that not all Research Outputs were suitable for this investigation, due to the fact that some did not consistently contain reference lists. These publications, therefore, had to be excluded before sampling could commence.

Some challenges presented which prompted the author to consider these in the analysis: The citations in the reference lists of selected research outputs were measured against the subscription of the HSRC LIS. It was, therefore, important to take the year of publication (of the cited resource) into account to confirm that the library subscribed to that particular resource at the time. Title changes had to be considered, as the current A-Z list might not reflect older historical holdings which were still in print. In some instances, references were incorrect and had to be verified.

Qualitative information seeking behaviour analysis

As stated before, a qualitative interview investigation was further done, to enable the author to answer the research questions. The quantitative citation analysis proved a strong uptake of subscribed, paid-for resources. It was now necessary to substantiate that outcome, by establishing how those resources were found.

A “semi-structured interview”-methodology was followed, as described by Alan Bryman (Bryman, 2012). A guideline with questions was developed beforehand. This methodology, however, allowed for flexibility as it allowed the author to ask follow-up questions if it was deemed necessary to explain a point of view. It also allowed the interviewee to offer opinions which might add value to the outcome.

Population and sampling

The participants for the interviews were all authors of the selected research outputs. But only 22 of the total population were selected. These represented the researchers in the organisation in terms of rank, age, gender, and proficiency. Non-probability purposive sampling was applied (Connaway and Powell, 2010) because the author’s knowledge of the population determined the sample size. Only 11 candidates excepted the invitations to the interviews, this lead to some challenges in the analyses of the data, which is discussed under “Challenges” below.

Informed consent

Informed consent was obtained from the interviewee before interview commenced. The “Information sheet” contained full details of the author as well as the investigation. It assured the participant of his/her security and privacy; it also provided details about the protection, storage and safekeeping of the data. Full details of the HSRC’s Ethics Committee were provided, as well as contact details of the author.

Interview guide

The interview guide was developed according to different themes. It started with some generic questions regarding literature gathering, -searching and –use. This allowed the author to determine proficiency levels right at the start of the interview. The rest of the guide was structured around specific themes: The first 4 themes dealt with information use: Reading nature; Gathering of information; Collaboration; Use of resources. Theme 5 investigated Electronic searching. Theme 6 Library resources, Theme 7 Information Literacy Training, and Theme 8 The Information Consultant (Liaison Librarian). The interview closed with a short discussion about the specific papers that were analysed with the quantitative citation analyses. The author asked pertinent questions, based on the findings of the quantitative citation analysis. Questions such as: “How did you go about retrieving [these] references?” or “Reference 14 in your list is not available online, the library doesn’t subscribe, it is not retrievable through any database/ research engine, but I can see the relevance to your article. How did you go about to find it?” (Louw, 2016)

Challenges

The first challenge experienced with the qualitative interviews were the fact that only 11 candidates (of the 22 sampled) excepted the invitations to the interviews. The author could therefore only report on the individual opinions of the participants, and not generalise the findings to the entire population.
Another challenge was that some senior research staff held positions at Universities as well. This granted them dual access to the resources available at those institutions, which might impact the HSRC LIS’s usage statistics.

The Interview Guideline presented some challenges as well, by duplicating some of the themes. The themes about the gathering of information and electronic searching could be dealt with under one heading.

**Results and analysis**

This study investigated the uptake of library subscribed resources as reflected in the Research Output collection of the HSRC through a quantitative citation analysis. It further investigated the information seeking behaviour of the authors of the selected papers, to substantiate the findings of the citation analysis.

**Quantitative citation analysis**

This investigation addressed the first research question: How is the uptake of paid-for resources reflected in the references lists of research outputs? The table below shows the percentage of citations listed in reference lists of research papers compared to the total number of citations listed.

<table>
<thead>
<tr>
<th>Year of publication</th>
<th>Total # Research Output (sample: 5%)</th>
<th>% Journal citations in HSRC subscribed Journal collection</th>
<th>% of books and eBooks in HSRC collection</th>
<th>% uptake of paid-for resources in HSRC collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>561 (29)</td>
<td>79.1%</td>
<td>36.7%</td>
<td>48%</td>
</tr>
<tr>
<td>2011</td>
<td>443 (23)</td>
<td>85.5%</td>
<td>42.5%</td>
<td>52.5%</td>
</tr>
<tr>
<td>2012</td>
<td>460 (23)</td>
<td>84.4%</td>
<td>36.5%</td>
<td>50.6%</td>
</tr>
<tr>
<td>2013</td>
<td>483 (26)</td>
<td>82.8%</td>
<td>48.3%</td>
<td>54.6%</td>
</tr>
<tr>
<td>2014</td>
<td>469 (24)</td>
<td>79.9%</td>
<td>35.5%</td>
<td>54.8%</td>
</tr>
</tbody>
</table>

- The total percentage uptake of all subscribed journals in the HSRC as reflected in reference lists of the Research outputs: 82.34%. Which shows that the HSRC LIS subscribes to effective resources which are well utilised by the researchers in the organisation.
- Utilisation of books, however, proved to be very low: 39.9%. This finding is on par with those reported by Donald King (King et al., 2009) and Ming-der Wu (Wu and Chen, 2012) who retrieved similar low usage of books by Social Science Scholars.

**Qualitative information seeking behaviour analysis**

Based on various references in the literature to the information seeking characteristics of young researchers (Millennials) vs that of older, established researchers) (Rowley and Urquhart, 2007; Ge, 2010; Urquhart, 2011; Wu and Chen, 2012) the author hoped to report accordingly after this investigation. The sample size, however, proved too small to generalise the findings to the entire population.

The author, therefore, reported the outcome of the themes which were investigated through the interview process, as follows:

- **Reading nature**: 55% of interviewees read every day, 36% read only project-specific. Under this heading, researchers were also asked about measures they used to stay abreast with latest trends in their fields. 36%
indicated they used email alerts (or RSS feeds) and 27% were informed by Colleagues, two candidates used review articles to stay abreast.

- **Gathering of information:** More than 55% indicated Google (Scholar) as their first point of entry. On the Google Scholar platform, they could “find” their way around a topic, highly cited articles will then guide them further. 18% was fortunate enough to start with their own knowledge base. Another two researchers started with Library-subscribed databases. Researchers in Public Health preferred Pubmed and MEDLINE.

  It is important to mention here that due to IP authenticated linking, all HSRC LIS subscribed content can be retrieved and downloaded through the Google Scholar platform, or any other platform.

- **Collaboration:** All the interviewees indicated that research cannot happen in isolation. Collaboration and external expertise were in their opinion critical to the success of a project, especially African counterparts, and those in the Global South.

- **Resource use:** None of the participants were prepared to pay for article download. The majority indicated that they will ask the LIS’s assistance in instances where they were prompted to pay.

- **Electronic searching:** This theme was already partially addressed in the section dealing with the gathering of information. The results proved a high proficiency in terms of electronic information usage – irrespective of rank or age. The author probed this theme a little bit further, by investigating the uptake of bibliographic management tools. The outcome here (36%) was encouraging and it is believed that this figure might rise in future as this is now a focus item for Information Literacy Training. The author also enquired about the usage of social media platforms. Blogs by trusted sources such as World Bank, McKinsey and London School of Economics were read by some of the participants. Most of the interviewees were registered users of ResearchGate and Academia.edu, but all said they would never use these public platforms (or Twitter or Facebook) to debate or defend their research.

- **Library resources:** Under this heading, the author explored attitudes towards the HSRC LIS. Most of the participants (64%) indicated that the strong and very supportive relationship with their Information Consultant (Liaison Librarian) was key to their information gathering process. Cost-cutting measures which were applied in 2014 lead to some cancellations of lessor-used resources. This, according to one participant caused “irreparable harm” to the reputation of the LIS as “custodian of information”.

- **Information Literacy Training Workshops:** Most of the participants found the Information Literacy Training workshops very useful. Participants did, however, share some ideas on how these workshops could be upscaled: More in-depth sessions on literature search methodologies; special sessions on Systematic Literature Reviews; Workshops should allow for proficiency levels of attendees; a topic-specific, subject-focused approach should be followed; Workshops should also include soft skills training such as writing skills, and presentation skills; hands-on sessions, with smaller groups, are preferred.

- **The role of the Information Consultants (Liaison Librarians):** The HSRC LIS follows an embedded approach through its Information Consultancy services. Participants were required to report on their relationship with their Information Consultant and the quality of the service they received. The services offered by the Information Consultant were regarded as highly useful. Most of the participants regarded the Information Consultant’s assistance as vital when work for a project is scoped. They also used the services during review processes to ensure comprehensive retrieval of evidence.

**Conclusion and recommendation for further research**

Assessments of library services and resources have been investigated and reported on for many years. It is critically important that Library services remain relevant to the communities they serve and that they offer services and resources needed by those communities.
With this investigation, the author attempted to prove the worth of the Library and Information Services of the Human Sciences Research Council in South Africa. It succeeded in demonstrating an 82.34% uptake of its subscribed resources, as reflected in the reference lists of Research Outputs over a 5-year period. It further succeeded in demonstrating the usefulness of LIS services. The investigation also highlighted some areas where new approaches are required, such as Information Literacy Training Workshops, and the services offered by the Information Consultants (Liaison Librarians).

Possible issues for further research would be an investigation of the reason for low usage of books by social science researchers (as also corroborated by Donald King (King et al., 2009) and Ming-der Wu (Wu and Chen, 2012). This investigation should be conducted in correlation with Interlibrary Loan statistics. The findings of such an investigation might lead to an adjustment of the LIS’s Collection Development policies.

To conclude the author can thus “demonstrate the worth of the HSRC LIS in a measurable way” (Louw, 2016). The findings of both the quantitative and qualitative investigation confirmed the worth of the LIS in terms of its (well chosen/selected) resources and the services it offers. The quantitative investigation proved a healthy uptake of its subscribed resources, as reflected in the reference lists of the Research Output of the HSRC.

References


Introduction
Does early exposure to scientific literature produce more information literate students? Can core subject instruction in critical thinking and practical analytical problem solving lead to long-term student success? These two questions capture the overall research questions for the Tracking Information Literacy in Science Students (TILISS) project. Typically, literature on information literacy focuses on library services, such as reference and instruction. Integrating the value of library collections with student learning assessments is an emerging area. The TILISS research team consists of three chemistry instructors and a librarian, with an interdisciplinary focus comparing information and scientific literacy, use of library online journals, and learning outcomes for chemistry students over four years. This report concentrates on the methodology used in the TILISS project. The initial results presented in this paper are in the form of a case study, provided so that the research protocols may be replicated by other librarians, instructors, and institutions. The preliminary findings presented herein are in agreement with previous data supporting the importance of explicitly articulating and assessing student learning outcomes as part of developing information and scientific literacy in college students.

Background
Partnerships between librarians and academic faculty enable interdisciplinary research on the impact of teaching information literacy skills in chemistry courses and the value of providing access to scientific journals, which supports and enhances college curricula. TILISS builds on such a partnership established during two prior projects. Pan began a collaboration with Bruehl, a chemistry professor, following a series of interviews with chemistry instructors (Pan et al., 2013). This interaction led to a student return-on-investment (ROI) project to investigate the value and contribution of library services and resources to academic teaching and learning outcomes. With the involvement of Science Librarian Ignacio J. Ferrer-Vinent, a student learning outcomes assessment project was implemented to gather and analyze library instruction and collections data over time (Pan et al., 2014).

The student ROI project took place from fall 2010 to spring 2013. Subjects included Honors General Chemistry (HGC) I and II Laboratory students at the start of their chemistry studies. Two complementary curriculum modules, one per semester, were delivered to establish a foundation of information literacy as a means to develop creative experiment design skills. The fall semester module Introduction to Scientific Literature included library instruction; finding, reading, and discussing a scientific journal article; researching an idea for a new general chemistry experiment; and selecting and citing appropriate sources. During the spring semester the students used their prior experience to develop and document a complete laboratory experiment package, and present project design and results to the class. In both semesters, the students: searched the scientific literature for concepts; used a template to capture their research process by recording citations for any resources downloaded and reviewed; selected and cited appropriate sources for their project. Results from this study demonstrated immediate and long-term benefits to the students’ performance and engagement in the sciences (Bruehl et al., 2014).

Based in part on the successful results of the student ROI project, TILISS researchers hypothesized that students from the HGC first-year sequence would use higher-quality journals and perform better on literature-based assignments in subsequent courses, compared to those who did not. To test these predictions, the TILISS team recruited Knight and Resendiz to track and compare the performance of students with and without prior information literacy training. Knight teaches General Biochemistry (GBC) I & II, and Resendiz teaches Organic Chemistry I & II, upper division courses taken in the 2nd - 4th year.
of chemistry studies, and both require assignments that use chemistry research literature. The team theorizes that students who received training in information literacy during HGC will do better on their research assignments in GBC and Organic Chemistry in subsequent years, than those who did not. This paper includes initial results from Knight’s GBC I & II class taught during the 2015-16 academic year as a successful illustration of the TILISS methodology.

Methodology

The TILISS research protocol was developed to identify, capture, and analyze data to assess and track information literacy across the chemistry curriculum. The methodology includes the following sequence of events. First, given that the subjects of the study are students, the researchers engaged and obtained an exemption from the Colorado Multiple Institutional Review Board in compliance with applicable federal, state, and local laws and regulations. This process ensures privacy and confidentiality of all student-identifiable information. The research protocol stipulates that only faculty have access to student information and that all personal identification is removed from the data prior to analysis. Students were explicitly invited verbally and in writing to participate or opt-out of the study. However, they were not allowed to opt-out of the required assignment because it represented a portion of the course grade. At the end of the semester, Knight and Resendiz gathered and coded key data from the student coursework and Bruehl identified the students who were part of the HGC cohort. This enabled the researchers to differentiate between students with or without prior information literacy training through HGC (some students had varying levels of training via other courses, but this was not considered for the present study). All student identification was replaced with numeric codes before sending to Pan, who searched, transcribed, and consolidated student grades and citation data. Once complete, all researchers contributed to the quantitative analysis of the consolidated data set.

The data used in this methodology was collected from research assignments in the GBC I and II courses. In each of these courses, students self-select into groups of 4-5 and collaborate to choose a research topic and prepare a mini-review citing relevant recent primary and secondary literature. While the assignments in GBC I & II are structured similarly, the topics are different. The students are writing their mini-review on a cell signaling pathway in GBC I, and a rare genetic disease in GBC II. To maintain consistency and objectivity in grading, each group’s paper is scored based on a rubric; the quality and completeness of the bibliography section counts for 5 points toward a total of 64 (GBC I) or 75 (GBC II) possible points. To capture individual student contributions, each student submits a Research Process Template recording the citations of all resources reviewed by the student as part of his/her scientific literature research. The data collected include citation counts from each student’s research process and the resulting bibliography from the group’s final paper.

The TILISS Student Data Set is captured in a Microsoft Excel worksheet. Each student record includes whether the student had prior information literacy experience from HGC; number of articles viewed, as shown on the Research Process Template; the group’s bibliography score; overall (group) assignment grade; and number of citations in the group’s bibliography. Table 1 illustrates an excerpt from the spreadsheet used for data analysis, including the header and two example records. Each record is assigned a Unique ID associated with a coded Student ID, for example, Row 2 contains the data for Unique ID AY16-45, which corresponds to student BC1516-034 in GBC I in Fall 2015. This student had prior information literacy instruction in HGC (indicated by the P in the Class Group #, Column 3), and participated in the group studying the metabotropic glutamate receptor (mGluR) cell signaling pathway (Group Topic, Column 4). In the process, the student viewed 10 resources (Column 5), and the group received a score of 45 out of 64 (Paper Score, Column 6) or 70% (% Score, Column 7), and cited 34 resources in their Bibliography (# Cited, Column 8), which earned a score of 3.5 out of 5 (Biblio Score, Column 9) or 70% (Biblio %, Column 10). Row 3 contains data for Unique ID AY16-46, which corresponds to the same student (BC1516-034) in Biochemistry II in Spring 2016. This student participated in the group researching the rare Maple Syrup Urine Disease (MSUD). For this project, the student viewed 28 resources, received a score of 70.5 out of 75 (94%), and cited 31 resources in the Bibliography, earning a score of 4.5 / 5 (90%).
To assess the quality of journals cited by students, the TILISS Citation Data Set includes the journal title of each cited article and the impact factors of that journal as reported by SJR, SNIP, CiteScore, and Journal Citation Reports® (JCR). The first three metrics were obtained from licensed access to Scopus, and the fourth was provided by a Clarivate Analytics subscription in May 2017. Although impact factors are imperfect measures, they can serve as useful approximations of journal quality for the purpose of assessing how well students discern articles to cite in their papers. For this initial analysis and methodology, the researchers used all citations from all types of articles and journals, including original research, review, and trade.

Table 2 includes a subset of the headers and two sample data records. As described previously with the Student Data Set (Table 1), the Citation Data Set includes relevant Unique ID and Student ID, Class Group #, and Group Topic (Columns 1-4). The Citation Data Set also includes a row for each reference listed in the bibliography, and provides the corresponding impact factors. To track an individual student’s prior participation in HGC, data from the same student shown in Table 1 are presented in the row 2 of Table 2. The first article cited in the final paper bibliography was published in the journal Nature Reviews Neuroscience and the impact factors are listed in columns 7-10. Row 3 lists the second citation in the bibliography, for the same student and project, the journal (Nature), and the JCR, CiteScore, SNIP and SJR impact factors. As evident from Table 1 (Row 2, Column 8) the mGluR group had 34 citations in their bibliography, and therefore the citation data set includes 34 rows for Unique ID AY16-45 with a row for each cited title and journal impact factor.

The data sets are then quantitatively analyzed by the researchers with Microsoft Excel sort, filter, and pivot tables to identify trends and test hypotheses.

Results

Preliminary analysis of student data from the 2015-2016 GBC I & II classes suggests that prior HGC instruction does have an impact on the bibliography score and overall grade received for the research paper assignment in GBC I. The analysis presented in Table 3 suggests that students with prior information literacy and scientific literature preparation from HGC earned better scores than those who did not. In fall 2015, 50% of students with previous instruction earned an A or B on their final paper, versus 13% of students without HGC. In GBC II however, the performance gap largely closes – 100% of students with prior HGC instruction earned As or Bs, in comparison to 85% without previous experience. The increased parity in GBC II is not unexpected, given that the experience of completing the GBC I assignment lays the foundation of information literacy. However, the preliminary data show early and repeated exposure to information literacy instruction correlates with consistently higher performance.
Table 3. Prior and No Prior Instruction in HGC Comparison by Paper Grade, 2015-16

<table>
<thead>
<tr>
<th>Score</th>
<th>Biochemistry I</th>
<th>Biochemistry II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall 2015</td>
<td>Spring 2016</td>
</tr>
<tr>
<td></td>
<td>Prior (#)</td>
<td>Prior (%)</td>
</tr>
<tr>
<td>A</td>
<td>3</td>
<td>50%</td>
</tr>
<tr>
<td>B</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>33%</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>17%</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>100%</td>
</tr>
</tbody>
</table>

Analysis of the citation data set enabled the authors to assess the impact factors as a proxy for quality of journals cited by students in their research papers. The data in Table 4 is limited to GBC I. Data from the GBC II assignment has been omitted because the nature of the assignment produces a confounding variable: briefly, the average impact factor will depend on the nature of the research topic for the GBC II assignment, but not for GBC I.

Across the four impact factors included in the analysis, preliminary data suggest that students who have had prior HGC information literacy instruction cite higher quality journals than those who have not. Table 4 shows the average impact factor for all the journals cited as a function of prior HGC information literacy training. While the differences are small in some cases, the trend is the same with higher impact factors among students with prior training in the scientific literature.

Table 4. Prior Instruction Comparison by Average Journal Impact Factor, Fall 2015

<table>
<thead>
<tr>
<th>Journal Impact Score</th>
<th>SJR</th>
<th>SNIP</th>
<th>CiteScore</th>
<th>JCR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior HGC (N=6)</td>
<td>9.00</td>
<td>2.75</td>
<td>8.60</td>
<td>12.72</td>
</tr>
<tr>
<td>No Prior HGC (N=15)</td>
<td>6.95</td>
<td>2.13</td>
<td>7.06</td>
<td>9.76</td>
</tr>
<tr>
<td>Difference between Prior HGC and No Prior HGC</td>
<td>2.05</td>
<td>0.62</td>
<td>1.54</td>
<td>2.96</td>
</tr>
</tbody>
</table>

Comparing the difference between prior and no prior instruction (from HGC) appears to be much smaller for the SNIP score. Each impact factor is calculated using a different methodology, and has a different range of values. Potentially the difference of 0.62 for SNIP values is not as small as it appears because the range of SNIP values is about half that of SJR values.1

While these results provide an interesting picture of journal quality in student citations, the researchers stress that this is a preliminary analysis that demonstrates the implementation of a methodology. Future plans include investigating average impact factors by article type, as review-oriented journals typically have higher impact factors than comparable-quality research journals. As initially hypothesized, the analysis of the preliminary data indicates that early introduction to the scientific literature and instruction on how to use library resources positively impacts academic performance over multiple years. Repeated exposure and usage of the scientific literature may further develop information literacy skills leading to long-term student success.

1 The highest ranked journal for the subject area of Chemistry in July 2017 is *Chemical Reviews* with SNIP of 10.369 and SJR of 19.282. Therefore, the range of Chemistry impact values is 0-10 for SNIP and 0 to 20 for SJR.
Conclusion
Research into the value of library resources in the classroom has provided a useful framework for collaboration between librarians and science instructors. The authors have assembled a multi-disciplinary team to study the introduction and persistence of information literacy and scientific literature skills to students. A unique methodology was developed that encompasses the identification, capture, and analysis of the data necessary to assess and track information literacy and student performance against articulated learning outcomes. The authors have collected and analyzed data on instructional background, journal usage, and student performance, and have used this data to assess learning outcomes and overall student success. Results from GBC I & II taught during the 2015-16 academic year support the hypothesis that early exposure to information literacy and scientific literature promotes long term student success as expressed by better grades on research paper assignments and greater use of higher quality journals. Although the courses chosen for the investigation are all in chemistry, the population of impacted students is significantly larger. Besides chemistry majors, this sequence of courses is taken by many biology and pre-health students with goals towards health science-oriented careers.

Through this work, the authors are assessing suitability for broader adoption. They are pursuing new interdisciplinary avenues for the use of library collections and investigating the impact of teaching information and scientific literacy to science students across the chemistry curriculum, from foundational to advanced courses. Demonstrating the connections between the introduction of scientific literature to chemistry undergraduates, and ultimately long-term student success, could have implications on collection development practices. Specific next steps include continuing student data collection in order to increase sample sizes, broadening the study by including multi-year analysis of student performance on scientific literature-based assignments in Organic Chemistry courses, and exploring the complexities of impact factors to evaluate use of higher-quality journals.

References


Evaluation by contrast

Exploring the characteristics of libraries in both high- and low-productivity research environments

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Abstract
This paper was submitted under the “from a differing perspective” strand, as it represents a library-related portion of a broader PhD dissertation. The overall purpose of the dissertation is to understand how universities can best support the research productivity of their faculty. Rather than being concerned with understanding the characteristics that define productive faculty researchers, the dissertation is concerned understanding the organizational characteristics that define productive research environments. As libraries represent a crucial component of institutional support for research, this paper examines how investment in library resources differs between high-productivity environments and low productivity research environments. Focusing on the discipline of biomedical engineering (BME), programs in this field at research-intensive US doctoral institutions were ranked by their effectiveness at producing quality scholarly output given the level of their resources. This ranking allows for the comparison of the library characteristics associated with BME programs at either extreme of this productivity spectrum. The results indicate that the BME programs that are categorized as the most effective at producing scholarly research were consistently associated with higher levels of institutional library expenditures and staffing levels. Likewise, those programs at the lower end of the productivity spectrum were consistently associated with lower levels of library investment.

Purpose of the Study
At its core, the dissertation behind this paper is concerned with institutional effectiveness. It is essential for those academic leaders who share the responsibility of planning, developing, and sustaining the various aspects of their organization’s research mission to be aware of the factors that define productive research environments. A university’s research enterprise is large, complex, and continuously evolving. It includes investment in research infrastructure, management of research space, support for locating and securing grants, grant management and accounting, investment in library materials and services, assistance in technology transfer, the management of intellectual property rights, and the oversight of research integrity. Some of these supports and resources are provided centrally, others by individual academic units, and many are provided by a combination of both. How well these components are strategically assembled, coordinated, prioritized, and managed are bound to either aid or hinder the productivity of researchers. To the degree that research productivity is influenced by a sum of various institutional dimensions, it warrants investigation as to which of those factors are most associated with productive research environments.

This paper represents the portion of the dissertation that relates to investment in library resources and services. It is an attempt to demonstrate library value empirically by correlating library investment with scholarly productivity. By identifying and contrasting high-productivity and low-productivity BME programs, the expectation entering into this study was that those BME programs that demonstrate a higher degree of effectiveness in terms research productivity will also be associated with better funded and better resourced libraries. The intent is to determine whether the value that a well-resourced library confers to its BME research community can be empirically manifested.

A fundamental reason for conducting this empirical analysis is to set the stage for the qualitative investigation that will follow. Unfortunately, at the time of this writing, that portion of the dissertation has yet to be conducted. It is hoped that by
identifying high- and low-productivity BME programs, it will enable the collection of valuable testimonies, stories, and anecdotes from BME researchers who occupy these contrasting environments about their interactions with their libraries.

Core Concept
A key feature of this study is that it intends to measure institutional effectiveness in research productivity, rather than research productivity itself. Instead of measuring and ranking each BME program by its total scholarly output alone – which is the approach of most traditional research productivity studies (Helsi and Lee, 2011) – this study is designed to produce a statistical model capable of identifying how much scholarly research BME programs should produce given its resources. This means that BME programs with more faculty members or research funding should be expected to produce more research than those with less. Once the predicted level of scholarly output is established for each BME program, it will be compared to the amount scholarship the program actually produced. The central idea is that this residual amount between the predicted and actual scholarly output of a BME program is the measure of its effectiveness at generating scholarship. For the purpose of this study, those programs that exceed their predicted output by the greatest margins are considered high-productivity research environments, because they have produced beyond expectation. Likewise, those programs whose actual scholarly output lags behind predicted levels would be considered as low-productivity research environments.

This approach borrows from the economic concept of total factor productivity (Hulten, 2007), and is based on the assumption that some portion of the residual success attained by programs that outperform their measurable resources is attributable to effective administrative agency – whether it is in the form of cultivating the right workplace environment, putting forth the right policies (or discarding the wrong ones), investing in the best supports and resources to maximize productivity (including libraries), or any other number of actions that can positively shape the environment in which the researcher pursues his or her endeavours. According to this line of thinking, if the collective level of scholarly output produced by a program’s faculty aligns with the level of resources the program puts into the research process – that is to say it is producing at the expected capacity – then the assumption would be that the program is operating at an acceptable level in terms of effectiveness. Moreover, this assumption would hold true regardless of where the program resides on the continuum of programs when ranked by overall research output or overall funding. However, if a program is not meeting its expected output, then there is must be an effectiveness problem to be found in that program’s approach to research. And finally, as mentioned above, if a program is significantly out-producing its expected capacity, then it can be judged as highly effective and must be doing something better than its peers which warrants investigation – again, regardless of where it may reside in the overall ranking of programs by raw scholarly output. In this sense, the study proposes to empirically distinguish effectiveness in research productivity from the cumulative success of individual researchers as measured by sheer volume.

Methodology
The goal is to develop a statistical model capable of predicting the scholarly output for each of the 87 BME program at a US doctoral institutions that are classified as “highest research activity.” This can be accomplished by allowing the actual of scholarly output produced by each program to serve as the dependent variable in a linear regression model while a variety of programmatic and institutional characteristics presumed to influence that scholarly output can serve as independent variables. The resulting regression equation can then be used to calculate predicted levels of scholarly output by plugging in every BME program’s actual data for each of the independent variables and then multiplying by its corresponding coefficient value from the regression model.

To begin, the number of peer reviewed articles produced by each BME program from 2013 to 2016 were aggregated and weighted by journal impact factor to serve as a dependent variable measuring the quantity and quality of each program’s scholarly output. The data was obtained using the Web of Science citation index and employing the following examples as a search queries:

- AD= ((“biomedical engineering” OR “biomed engn”) SAME Harvard)
- AD=((“bioengineering” or “bioengn”) SAME Clemson Univ)

The queries were designed to pull any article with an author whose departmental address included “biomedical engineering”, “bioengineering”, or WoS’s standard abbreviation for either field. Each article was then multiplied by the impact factor of its
The dependent variable data was then transformed by dividing it by the number of tenure and tenure-track faculty employed by each program. The reason was to derive a ‘per capita’ measure of journal articles per faculty member to improve the comparability between different size departments. As such this incorporates on the study’s most important independent variables – number tenured and tenure-track faculty member – into the dependent variable. This number was then regressed against an array of programmatic and institutional inputs presumed to influence scholarly output. Each of the variables and data sources are as follows:

- **BME research expenditures** – Naturally, this variable is expected to be strongly related to research productivity. This data is provided by Higher Education Research and Development Survey (HERD) which is conducted annually by the National Science Foundation (NSF). Among other data, this survey records how much each US school of engineering spent on research by sub-discipline, including biomedical engineering. The expenditures reported are from all funding sources whether governmental, private, or provided by the institution itself. The research expenditures for each program are for the years 2013 through 2015 and were added into a single total. The date range of the expenditures, like that of many other independent variables in the model, slightly precedes the date range of the dependent variable (2014 through 2016) based on the assumption that inputs logically proceed outputs.

- **% of BME research expenditures to engineering school research expenditures** – this variable is included to simply determine if the proportionality of a BME program to the school of engineering in which is housed has a relationship to increased productivity. This data also comes from the HERD survey.

- **Average BME student enrolment** – This variable was included to represent the teaching load faced by each program. The expectation is that as it increases relative to the faculty count, research productivity will decrease. The data is provided by the American Society for Engineering Education (ASEE) and it includes all undergraduate and graduate level BME students.

- **Non-tenure-track teaching faculty** – Also reported from ASEE, this variable is expected to mitigate the teaching load and be positively correlated with increased productivity. Because it is reported at the school level only, it was included in the model as the ratio of the number of non-tenure-track teaching faculty to the number of tenured and tenure-track faculty employed by the entire school of engineering.

- **Non-tenure-track research faculty** – This came from the same source and was handle the same as the non-tenure teaching faculty variable above. As it represents additional trained researchers associated with the program, it is expected to increase productivity.

- **Fellows, graduate research assistants, and graduate teaching assistants** – As with the non-tenured track faculty above, the data for these variables are only reported to ASEE on the school level and are therefore included as a ratio variable to the total number of tenure and tenure-track faculty employed by the entire school of engineering. All are expected to increase research productivity by either directly engaging in research or, in the case of the teaching assistants, in mitigating against the effects that the teaching load are likely to have on research output.

- **Total library expenditures and library material expenditures** – It is expected that the more an institution invests in libraries and scholarly materials, the more productive its research community will be. The library data is provided by the Association of College and Research Libraries’ annual Academic Library Trends and Statistic Survey and was retrieved using Counting Opinions ACRLMetrics tool.

- **Professional Librarian FTE** – The number of librarians employed by an institution represents the human capital portion of its investment in overall library resources and services. It is expected that research productivity should increase along with the size of the professional library staff.
• **Electronic and digital serial titles** – This variable was included to represent a measure of collection size, rather than relying solely on library expenditures and staffing levels. It is assumed that BME faculty rely heavily upon these resources in conducting their research and, as such, it should be positively related to research productivity.

The resulting regression equation describes the relationship between the inputs of and constraints to the research process and the scholarly output for the programs included in the study. Using this equation, it is possible to calculate the expected amount of scholarship that each BME program should have been able to produce given its inputs. As stated above, the difference between this expected value and actual output forms the basis for establishing each program’s effectiveness at producing scholarship and is the basis of the comparative analysis.

Each of the above data sources had incomplete or no data for some of the BME programs that were intended to be included in the study. As a result, 26 BME programs had to be excluded from the study, leaving only 61 of the original 87 programs to be included in the analysis below.

### Data Analysis and Results

Out of necessity, this section contains a fair amount of discussion about the process of building a statistical model capable of predicting how much scholarly output a BME program ought to be able to produce given its resources and characteristics. In doing so, it largely strays from addressing library-related results in any direct fashion until the final subsection titled “Analysis of Residual Results” as well as in the findings and conclusion sections at the end of the paper.

#### Building the Regression Model

The analysis began by reviewing the distribution of each variable’s data. The data for the dependent variable as well as student enrolment, non-tenured research faculty, and non-tenured teaching faculty were all transformed into log variables to correct for left-skewed distributions.

An initial regression model was run in which the scholarly output for each BME program was regressed against all of the independent variables. In this initial model, only the graduate research assistants, non-tenured research faculty, and student enrolment variables had statistically significant relations to the dependent variable. As expected the first two had strong positive relationships with scholarly output while the latter had a strong negative relationship. Other variables were quite far from demonstrating a statistically significant relationship to scholarly output. These included the variables representing non-tenured teaching faculty, graduate teaching assistants, and electronic and digital serial titles. A variety of paired down models were run featuring these variables with those that were statistically significant in order to determine if they would demonstrate a relationship to the dependent variables under different circumstances. Despite testing a variety of different combinations the variables never showed any indication of a statistically significant relationship and were therefore excluded from future models.

Once these least significant variables were excluded, the remaining variables proved capable of forming a series of largely stable models where each of the variables were significantly related to the dependent variable at a 90% confidence level (p<.1) and most were significant at the more standard 95% confidence interval (p<.05), the latter of which are denoted in bold in table 1 below. Each of the remaining library-related variables (total library expenditures, library material expenditures, and librarian FTE) were positively related to scholarly output. Of these variables, total library materials had the strongest and most significant relationship to scholarly output. It is important to note that all three library-related variables were also highly related to one another, a condition termed multi-collinearity. This means that the number of librarians and the library material expenditures for each institution increased and decreased so uniformly with total library expenditures from one institution to the next that the statistical analysis was unable to singularly distinguish the individual relationship that any one of these variables had with scholarly output. The result is that the coefficient calculated for each variable is meaningless. Because the research design calls for running predicted values using each variable’s coefficient, the library variables could not be included together in a model. Their collinearity also suggests that they are so similar, however, that one can almost be considered a surrogate for the others. Therefore, three versions of a model were run where library material expenditures, total library expenditures and librarian FTE were each featured separately. All three versions also included variables representing BME research expenditures, the percentage of BME research expenditures to each

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engineering school’s total research expenditures, graduate research assistants, non-tenured research faculty, and student enrolment. The results for each model can be seen in Table 1.

The model featuring total library expenditures was the strongest overall. That model has a slightly higher R and R square values, which measures how well the model describes the variation in the data. In the case of model 2, the R square value suggest that this model adequately accounted 58.5% of the variance found between the dependent and independent variables. While the R square value achieved by the other two models are only marginally lower, model 2 also contains more statistically significant variables – including total library materials – while the library-related variables in models 1 and 3 did not correlate with scholarly output as significantly.

Focusing solely on model 2, the results indicate the following:

• **BME research expenditures** are positively related to scholarly output at a confidence level exceeding 95%, which is not surprising. For each additional dollar spent on research, the number of impact factor-weighted articles per tenured faculty member produced by each program rose by \(0.00000000627\). While this coefficient is miniscule, it must be remembered that the size is related to scope of research expenditures which were measured in the tens of millions of dollars per program over the period of 2014 to 2016. The standardized coefficient, on the other hand, allows for better comparison between the independent variable as to which are most strongly related to the dependent variable. With a standardized coefficient of \(0.257\), BME research expenditures had the third strongest relationship to scholarly output. This was somewhat surprising, as research funding was hypothesized to be the strongest predictor of scholarly output.

• **Graduate research assistants** had the most significant and strongest relation to scholarly output. Similar results were found in an earlier study by Dundar and Lewis (1998), who found the research productivity in engineering was heavily reliant on graduate research assistants more so than other fields that the authors studied.

• **BME student enrolment** as a ratio to tenured faculty members was negatively associated with scholarly output. This result was expected as the more students per faculty member, the more time each faculty member would logically need to commit to teaching at the expense of other activities – most presumably research. What is surprising is that the variables for graduate teaching assistants and non-tenured teaching faculty were expected to mitigate impact that teaching loads had research productivity, yet these variables had no significance and were excluded from the final model. With a standardized coefficient of \(-0.264\), student enrolment had the second strongest relationship with scholarly output.

• **The percentage of BME research expenditures to each school of engineering’s total research expenditures** was positively related to scholarly output, although at \(0.07\) the relationship was not statistically significant at confidence level...
of 95%. It was left in the model, however, because it was very close to statistically significant. It likely indicates that the larger the BME department is in comparison to the school, the more productive that department is likely to be.

- **Non-tenured research faculty members** were positively and significantly related to scholarly output. While this result is logical, it is surprising, perhaps, that the strength of this relationship was only half that of graduate research assistants according to the standardized coefficients (.244 and .507 respectively).

- **Total library expenditures** were positively related to scholarly output in a statistically significant fashion. These results will be discussed more fully in the reminder of this section as well as in the findings section.

**Predicted and Residual Values**

The coefficients for each variable in the model represent the parameter estimate of the degree to which scholarly output should be expected to change per each additional unit of that variable. Therefore, to calculate the predicted amount of scholarly output the coefficient for each variable in the model is multiplied by each department’s actual datum for that variable.

The following equation was used to calculate the predicted scholarly output for each program:

\[
\text{Predicted scholarly output} = 4.697 (\text{constant}) + (0.00000000629 \times \text{BME research exp.}) + (0.298 \times \text{grad. research assts.}) + (-0.244 \times \text{avg. enrolment}) + (0.993 \times \text{% of total engineering research exp.}) + (0.154 \times \text{non-tenure research faculty}) + (0.00000000928 \times \text{total library material expenditures})
\]

To state precisely, this calculation provided the model’s estimate of how many impact factor-weighted journal articles per tenured faculty member each program should have been capable of producing from 2014 through 2016. The figure was then subtracted from each program’s actual output during that same time period to determine each program’s residual output.

**Analysis of Residual Results**

Once the residual values were calculated, the programs could be ranked accordingly. To provide an indication of the range, the most effective program produced 43% more journal articles per faculty member than predicted while the program with the lowest residual value produced 22% less articles per faculty member than was predicted. Meanwhile, that actual output of most programs (45 out of 61) was within 10% +/- of the model’s predicted output.

Once the residual production of each program was established and they could be sorted from highest to lowest in terms of effectiveness in research productivity, it became evident that library characteristics had a remarkable relationship to scholarly output. When comparing the top-performing programs with the lowest-performing programs, the top programs all had considerably bettered-resourced libraries. Meanwhile, the amount of research expenditures recorded by each program had little relation to whether that program was at the high or low end of the rankings. The model, of course, was designed to control for these things. The more research expenditures a program recorded, the more scholarly publications per faculty member the program was expected to produce. The same could have been expected for library materials, since total library expenditures were also part of the regression equation. Yet it seems that having library that is better staffed and resourced is a condition that is associated with highly effective research environments.

For example, in table 2, the first section compares the library characteristics (librarian FTE, total library expenditures, and library material expenditures) of the top three and bottom three ranked programs. The programs at the top of the effective productivity ranking were associated with libraries that had twice as many librarians on average as those at the bottom of the rankings. Likewise, the total library expenditures and library material expenditures associated with the most effective programs were respectively 49% and 40% higher than the bottom three programs. Yet, the BME research expenditures were actually 13% higher among the less effective programs than their more effective peers. The same trend repeats itself with the same general results, though with some variance, whether the comparison is between the top five and bottom five programs or the top ten and bottom ten programs. At the bottom of table 2 these results are all compared to the averages for all programs in the study. In each instance, the high-productivity research environments are marked by higher levels of library
personnel and spending. Meanwhile, the level of BME research expenditures is not consistently associated with the high or low end of the rankings.

Table 2. Comparisons between highest and lowest ranked programs.

<table>
<thead>
<tr>
<th></th>
<th>Prof. Librarian FTE</th>
<th>Total Library Exp.</th>
<th>Library Material Exp.</th>
<th>BME Research Exp.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOP AND BOTTOM THREE PROGRAMS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>average top 3</td>
<td>112.43</td>
<td>$39,722,803$</td>
<td>$18,246,454$</td>
<td>$34,404,667$</td>
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<tr>
<td>average bottom 3</td>
<td>56.08</td>
<td>$26,710,590$</td>
<td>$13,016,596$</td>
<td>$39,522,333$</td>
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<tr>
<td>DIFFERENCE</td>
<td>56.35</td>
<td>$13,012,213$</td>
<td>$5,229,858$</td>
<td>($5,117,667)</td>
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<tr>
<td><strong>TOP AND BOTTOM FIVE PROGRAMS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>average top 5</td>
<td>84.98</td>
<td>$30,281,015$</td>
<td>$14,177,729$</td>
<td>$38,205,800$</td>
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<tr>
<td>average bottom 5</td>
<td>56.85</td>
<td>$24,665,885$</td>
<td>$12,144,085$</td>
<td>$33,813,200$</td>
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<tr>
<td>DIFFERENCE</td>
<td>28.43</td>
<td>$5,615,130$</td>
<td>$2,033,644$</td>
<td>($5,607,400)</td>
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<tr>
<td><strong>TOP AND BOTTOM TEN PROGRAMS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>average top 10</td>
<td>84.03</td>
<td>$32,097,447$</td>
<td>$14,550,031$</td>
<td>$35,448,100$</td>
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<tr>
<td>average bottom 10</td>
<td>50.56</td>
<td>$21,471,571$</td>
<td>$10,900,096$</td>
<td>$28,033,200$</td>
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<tr>
<td>DIFFERENCE</td>
<td>33.48</td>
<td>$10,625,877$</td>
<td>$3,649,345$</td>
<td>($2,585,100)</td>
</tr>
<tr>
<td><strong>AVERAGE OF ALL PROGRAMS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>average of all</td>
<td>80.21</td>
<td>$30,885,095$</td>
<td>$13,635,274$</td>
<td>$33,256,721$</td>
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<tr>
<td>DIFF. to top 3</td>
<td>32.23</td>
<td>$8,837,708$</td>
<td>$4,611,180$</td>
<td>$1,147,945$</td>
</tr>
<tr>
<td>DIFF. to bottom 3</td>
<td>24.12</td>
<td>($4,174,500)</td>
<td>($618,078)</td>
<td>$2,868,612$</td>
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<tr>
<td>DIFF to top 5</td>
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<td>($604,080)</td>
<td>$542,455$</td>
<td>($5,050,921)</td>
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<tr>
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<td>-23.56</td>
<td>($6,019,210)</td>
<td>($1,491,189)</td>
<td>$556,479$</td>
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<tr>
<td>DIFF to top 10</td>
<td>3.83</td>
<td>$1,212,352$</td>
<td>$914,757$</td>
<td>($7,968,621)</td>
</tr>
<tr>
<td>DIFF to bottom 10</td>
<td>-29.65</td>
<td>($9,419,254)</td>
<td>($2,734,088)</td>
<td>($5,293,521)</td>
</tr>
</tbody>
</table>

Findings/Conclusions

The primary reason for attempting to rank the research productivity of BME programs in terms of effectiveness as measured by residual scholarly output, rather than simply ranking them in terms of total, unadjusted scholarly output is because those programs with the most research funding and faculty members can be expected to be at the top and the rest of the field will descend accordingly. By ranking the programs in terms of residual scholarly output, in order to identify what has been termed in this paper as high-productivity research environments and low-productivity research environment, the effect of size and wealth are neutralized. The programs are judged on what they have accomplished relative to their resources. That is what makes the results in table 2 so potentially remarkable from a library perspective. The implication of these results is that, even when controlling for the research expenditures, none of the programs that demonstrated the highest levels of effectiveness in producing scholarship did so without a library that was better funded and staffed than the average library for those institutions included in the study. Furthermore, the low-productivity environments that made up the bottom end of the residual rankings were consistently associated with libraries that had below average expenditures and staffing levels.

As with any non-controlled study, the correlations established in here cannot be presumed to be causal. Likewise, there is certainly no indication of the extent to which the libraries included in the study effectively support the BME programs on their campuses. Furthermore, it can be safely assumed that most of the professional librarians on a given library staff have little to do with biomedical engineering, just as much of the library materials expenditures are likely to cover other disciplines. When Dundar and Lewis (1998) found a strong positive relationship between institution-level library expenditures and department-level research productivity, they suspected that it could be a proxy for institutional support for research infrastructure in general. In other words, those institutions that are able and willing to provide a well-resourced library system were likely in a position to provide strong central support to other areas of the research infrastructure which were also likely to improve research productivity. They lamented that libraries were the only entities among the research infrastructure apparatus to consistently report out useful data, hence the authors could only speculate on this theory. On the other hand, in a study that preceded this one (Rawls, 2015), I speculated that the rapid increase electronic material holdings
and accessibility may have introduced a level of efficiency into the research process that could have a cumulative effect on a campus-wide level that was much more pronounced when the library was well-resourced. Regardless, the empirical analysis here can only answer what the correlations are between library characteristics and research productivity, it cannot answer why they are correlated.

Because empirical analysis is unable to answer the why type questions, the next step of the dissertation is to talk directly to the faculty researchers who work in the high-productivity and low-productivity environments that have been identified by this quantitative portion of the study. Among the things I plan to ask of these researchers who occupy either extreme of this continuum is for them to share their experiences and interactions with library resources and services. How do libraries impact – of fail to impact – their productivity? Whether the responses from the opposite ends of this spectrum offer strongly contrasting themes or no discernible difference, I hope to share them with the library community in order to add context to empirical studies, such as this one, that offer correlations as an indirect attempt to demonstrate library value.

References


Experience Assessment:
Designing an Innovative Curriculum for Assessment and UX Professionals

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Introduction

While assessment and user experience have been identified as areas of growing focus in all types of libraries, there is currently little infrastructure to prepare students for these roles. (Applegate, 2016; Askew & Theodore-Shusta, 2013; Nitecki et al., 2015; Oakleaf, 2013; Passonneau & Erickson, 2014) As a step toward addressing this gap, a team from the University of Tennessee’s (UTK) School of Information Sciences (SIS), worked with practitioner partners from academic libraries and information agencies to develop a new model for preparing information professionals with assessment and user experience expertise. Funded by the United States’ Institute for Museum and Library Services (IMLS) Laura Bush 21st Century Librarians program (LB21), “Experience Assessment” (UX-A) is a program of focused and standard course content, workplace experiences, and intensive mentoring by academics and practitioners. As of July, 2017 twelve Master’s students have concluded the first year of their two-year program.

This paper discusses the structure and history of UX-A, issues related to developing a new curricular program for Library and Information Science (LIS) education, and the educational and professional development needs of the assessment and user experience professional community.

Literature Review

Assessment and User Experience (UX) and the Information Professions

In order to justify allocation of valuable resources, libraries must demonstrate how they contribute to their parent institutions’ goals. Libraries have been stepping up assessment programs for some time; 99% and 100% of respondents to a 2007 Association of Research Libraries (ARL) member survey and a 2009 survey of SCONUL member libraries in the UK and Ireland, respectively, reported engaging in assessment. (Wright & White, p. 16; Stanley and Killick, p. 16). In one of the most representative assessment-related surveys of academic libraries to date, 78% of respondents agreed that “assessment is a priority of library administration,” with 59% of respondents reporting that their library had established a “culture of assessment,” or an institution “where assessment is a regular part of your institutional practice.” (Farkas et al., 2015, p. 157)

The term “user experience” (UX) was first coined in 1995 by Norman, et al. to describe their work in human interface research and applications. UX research and testing allows a practitioner to analyze the complex and often competing criteria between the user’s internal state, the system’s characteristics, and the context of the interaction to inform the creation of products and services that provide a positive experience rather than simply preventing pain points. (Hassenzahl & Tractinsky, 2006; Law et al., 2009; Bargas-Avila & Hornbaek, 2011; Lallemand, Gronier, & Koenig, 2015).
According to Applegate (2016), “roles are changing: some of the most professional-level activities of graduate-degreed librarians involve planning, education, and assessment.” (p. 75) Indeed, according to more recent studies, the number of assessment-related positions in libraries has steadily grown. In 2015, 56% of ARL member libraries surveyed reported having a position solely or partly dedicated to assessment (Brannen, et al., 2016, p. 228), in contrast to only 35% of respondents having reported this in 2007 (Wright and White, p. 25).

UX research and design is a critical component of assessment in libraries and other information agencies. (Fox & Doshi, 2011; MacDonald, 2015; Gallant & Wright, 2014) Early advocates clearly saw a logical connection between UX and a user-centered profession interested in creating a “memorable experience for seekers of knowledge” (Bell, 2008, p.48; Schmidt, 2010). Although library interest in UX developed alongside the emergence of online resources, including library websites, UX research techniques such as usability testing can be applied to many aspects of digital and physical information services and resources. (Garlock & Piontek, 1996; Gluck, 1998; Gallant & Wright, 2014; Godfrey, 2015) MacDonald (2015) found that UX librarians perform tasks such as user research, usability testing, and assessment. UX-related skills such as information design, wireframing, CSS, Javascript, PHP and HTML are highly desirable in libraries (Wise, Henninger, & Kennan, 2011, p. 281; Maceli, 2015a) as evidenced by the emergence of new librarian position titles such as Web Architect, Web and User Interface, and User Experience. (Maceli, 2015b)

**Core Competencies for Assessment and User Experience**

Four of ALA’s eight Core Competences of Librarianship list knowledge of the principles or methods of assessment. (ALA, 2008; Askew et al., 2013; Dole, 2013) The Association of College and Research Libraries (ACRL) went a step further and developed extensive and specific guidelines for assessment professionals, a broad statement of skills that can be customized based on specific needs in positions and programs. (ACRL, 2017) They include knowledge of research and assessment methods; effective communication, marketing, and advocacy; and leadership, management, and mentoring skills.

**User Experience (UX)**

Without a unifying organization or association, reaching consensus on core competencies for UX practitioners is difficult. Instead, the UX community has developed a collection of frameworks for UX skill sets and deliverables. Competences fall into the following areas:

1. Interaction design and information architecture
2. User research: heuristics, cognitive walkthroughs, prototyping, usability
3. Visual design and media skills
4. Understanding clients and stakeholders: business and communication skills

In both areas, many authors have commented on the importance of so-called “soft skills” such as emotional intelligence. (Ammons-Stephens et al., 2009; McNeil, 2002; Nitecki et al., 2015; Passonneau & Erickson, 2014; Perryman, 2015; Saunders, 2015; Walter & Oakleaf, 2010)

---

1 Human Factors International –Certified Usability Analyst (http://www.humanfactors.com)
General Assembly: core skills for user experience design process (https://generalassemb.ly/)
Nielsen Norman Group (https://www.nngroup.com/articles/becoming-a-usability-professional/)
MIT: User Experience (UX) Specialist Position Description

12th International Conference on Performance Measurement in Libraries
Education for Assessment and User Experience

While there are several different models for LIS education throughout the world, in the U.S. a two-year Master’s degree from an American Library Association (ALA)-accredited program is the professional standard. (Matusiak, et al., 2014) Although LIS curricula have evolved over the last 20 years to include, for example, courses in information technology (Hall, 2009, p.65) and an emphasis on experiential learning in the form of practica, internships, or field work (Matusiak, et al., 2014; Saunders, 2015), LIS curricula can lag behind developments in the information professions, as appears to be the case in the areas of assessment and user experience. (Saunders, 2015, p.431-2)

Although as Farkas (2013) points out, conducting and utilizing information gleaned from assessment isn’t an “intuitive” skill, most LIS programs do not require that students complete an assessment course. (p. 23) Applegate (2016) found that while one-third of job postings include assessment-related responsibilities, only 15% of LIS programs require courses in assessment. (p. 84) Askew and Theodore-Shusta (2013) reviewed course descriptions from ALA-accredited graduate programs for assessment-related content and found that just 10% included assessment as a goal of the class. (p. 6) Librarians appear to develop these skills outside the LIS educational experience; a survey of librarians with assessment-related responsibilities found the majority of respondents learned the skills needed to perform their work by reading books or journals (85%) or through trainings at conferences or workshops (85%). (Fleming-May & Mays, 2016) Only 14% reported learning these skills in an LIS class, and just 10% took an LIS class solely dedicated to assessment. (Ibid.)

Instruction in UX is multi-disciplinary. Farrell & Nielsen (2013) survey of almost 1,000 UX professionals about their UX careers found 52% of respondents had at least one master’s degree and of those (p.11), MLIS graduate degrees ranked third in frequency. (p. 127) Complementing those findings, Bias, et al. (2012) surveyed MLIS graduates and reported that 94% of respondents use the general principles of usability and user-centered design. (p. 281)

While establishing a culture of assessment is a goal of many information organizations, lack of staff preparation to perform and interpret assessment is frequently cited as a barrier to doing so. (Farkas et al., 2015, p. 163) In the 2007 ARL and SCONUL surveys, respectively, only 19% and 26% of respondents felt their staff had the skills and expertise to conduct quality assessment. (Wright and White, 2007, p. 53; Stanley and Killick, 2009, p. 13) Further, lack of assessment skills not only affect an organization’s capacity to perform assessment, but also decrease its likelihood of effectively using any data they do collect. (Oakleaf and Hinchliffe, 2008).

Program Design

In fall of 2015, faculty from the School of Information Sciences submitted an application for funding from the United States’ Institute for Museum and Library Services Laura Bush 21st Century Librarians program to develop a program to help address the need for formalized assessment and user experience training in LIS education. Experience Assessment (UX-A) was designed for a cohort of students with interests in two areas: Academic Libraries and Specialized Information Agencies. The two groups would complete much of the same coursework, earn the ALA-accredited Master’s degree and have the opportunity to engage in co-curricular activities focused on user experience and assessment. However, each sub-group would also pursue a subject-specific curriculum. In April 2016, IMLS informed the UX-A team that the program was funded.

Recruiting and Screening Students

In the summer of 2016, the UX-A Management Team, comprised of the Principal Investigator, Co-Principal Investigators, Program Manager, and Senior Staff began soliciting applications for a cohort of twelve students, casting a wide net by distributing information about the program using tools such as professional listservs, directed emails, print flyers, career development offices, and personal contacts, ultimately engaging with nearly 50 prospective students. One of the principles that
drove recruitment was commitment to a diverse student group. To that end, recruitment efforts included sending messages to listservs dedicated to diversity in LIS, and to Historically Black College and University (HBCU) career center and library employees. Applicant recruitment and screening consumed much of the summer of 2016; the twelve-student cohort was finalized shortly before the fall semester commenced in August, 2016.

Program Structure

The UX-A program is comprised of two major “tracks”: the ALA-Accredited Master’s degree’s 42 graduate credit hours, and a structured system of co-curricular study and experiences. Each student also receives funding for conference travel.

<table>
<thead>
<tr>
<th>Semester</th>
<th>For-credit coursework</th>
<th>Co-curricular experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester 1</td>
<td>INSC 510, 520, 530 (9 hours)</td>
<td>Workshops and tutorials; Weekly meetings; Graduate Research Assistantship</td>
</tr>
<tr>
<td>Semesters 2-3</td>
<td>INSC 504: Research Methods; INSC 588: Human-Computer Interaction; Statistics; INSC 552: Academic Libraries or 553: Special Libraries; Electives (9 and 6 hours, respectively)</td>
<td>Research Projects; Graduate Research Assistantship; Assessment Workshop; Statistics “Bootcamp”</td>
</tr>
<tr>
<td>Semester 4</td>
<td>INSC 590: Planning and Assessment Electives related to specialized information setting INSC Electives (6 hours)</td>
<td>INSC 598: Practicum (3 hours) Monthly meetings; Graduate Research Assistantship</td>
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<tr>
<td>Semester 5</td>
<td>Electives related to specialized information setting INSC Electives (6 hours)</td>
<td>INSC 598: Practicum (3 hours) Monthly meetings; Graduate Research Assistantship</td>
</tr>
</tbody>
</table>

Table 1: Structure of UX-A Program by Semester

Curriculum

In designing UX-A’s curriculum, the team was guided by the principle that the program must be informed by the research in the field and responsive to its needs while meeting the future needs of its students. UX-A provided an opportunity to innovate while supporting UTK’s Experience Learning initiative, the goal of which is transforming the UTK educational experience by providing opportunities to “be involved in civic engagement, solve complex real-world problems, and contribute to the welfare of their communities (The University of Tennessee, 2016) A second consideration in conceptualizing the curriculum was the types of skills being sought by employers and being used by those working in the field. A few studies have looked at assessment skills sought in job postings (Passoneau & Erickson, 2014; Walter & Oakleaf, 2010) and several past studies have queried assessment librarians about the duties they perform on the job. (Wright & White, 2007; Stanley & Killick, 2009; Brannen et al., 2016, Fleming-May & Mays, 2016) Concepts and skills key to assessment and user experience were identified from these studies, as well as from input provided by project mentors.

The UX-A curriculum provides an intellectual foundation for Assessment and User Experience-related work. In addition to the 9 credit hours required for the School of Information Sciences (SIS) Master’s degree, UX-A students are required to complete an
additional 33 credit hours of coursework in both the School of Information Sciences and departments outside SIS. These include a graduate-level statistics course and electives related to the information setting of their choice. For example, students in the Academic Libraries track are encouraged to enroll in Higher Education Administration courses offered by the Educational Leadership and Policy Studies program, such as History and Philosophy of Higher Education, while those in the Specialized Information Centers track will enroll in Survey of Organizational and Team Communication offered by the School of Communication Studies.

Co-Curricular Elements of the Program

The for-credit curriculum is supplemented and enhanced by a set of experiences and learning opportunities.

Meetings and Workshops

In the first year of the program, UX-A students participated in regular group meetings that featured presentations from UX and Assessment professionals, giving UX-A students the opportunity to learn about different types of work and settings, and begin building a network of professionals in their field of interest. Guest presentations also served the practical purpose of introducing students to individuals who had agreed to serve as supervisors and mentors for the practicum placements scheduled for the second year of the program. Students also completed an Assessment workshop offered by UX-A Program Senior Personnel Martha Kyrillidou and a “Statistics Bootcamp” taught by SIS Director Diane Kelly. In the second year, UX-A students will continue participating in professional development.

Graduate Research Assistantships

Each UX-A student receives an assistantship paying for tuition and a monthly stipend and requiring their participation in research work assignments. In the first semester, for part of their weekly hours, UX-A students completed a series of online and in-person workshops, which included a 22-hour Lynda.com “playlist” covering topics such as user experience, assessment, communication, and time and project management, and in-person training on specific research software packages such as Qualtrics and NVIVO.

Research Projects

In the second semester, the students were divided into two groups by interest (academic libraries or specialized information setting) and assigned a UX/Assessment project to complete as independently as possible. The academic library group was tasked with exploring use of two specific spaces in UTK’s main library, and evaluating the usability of the UTK Libraries’ website as an information source for UTK Graduate Students. These projects required that the Academic Library Research Team conduct a literature review, design a study and attendant materials, and submit an Institutional Review Board (IRB) application. Data collection for the two space usage studies was completed in spring 2017, and the website usability study is scheduled for fall 2017. The students will present preliminary findings from the space studies at the 2017 Southeastern Library Assessment Conference (SELAC).

The Specialized Information Agencies group worked with the Oak Ridge National Laboratory (ORNL) to assess the usability and user experience of the Spallation Neutron Source (SNS) website. The students met with the SNS clients to identify their project requirements and developed a project plan that included constructing personas, completing a heuristic evaluation of the website, and conducting a usability study of the website at the College of Communication and Information/ORNL User-Experience Laboratory. The students will deliver a written report and client presentation in summer 2017.

Practica and Mentoring

Perhaps the most significant component of the UX-A program is the Practicum. There is strong evidence in the LIS literature indicating significant benefits to both practicum student and on-site mentor (Coleman, 1989; Bird, Chu & Oguz, 2015); studies
find students benefit from real-world experience and connections while practitioners appreciate students’ fresh perspectives (Ferrer-Vincent & Sobel, 2011, p. 371) and having an opportunity to contribute or “give back” to the profession (Juznic & Pymm, 2011, p. 611). The opportunity to engage with a variety of audiences and gain exposure to studying and working with diverse populations is a documented benefit to practicum students (Asher & Alexander, 2006, p. 22).

The lack of a broader context for student learning is most commonly identified as a shortcoming of practica or field experience. (Damasco & McGurr, 2008, p. 44) Current research suggests a stronger link to in-class learning, perhaps by incorporating learning outcomes into the practicum experience, would make practica more effective. (Searing & Walter, 2012, p. 15; Bird & Crumpton, 2014, p. 94; Bird et al, 2015, p. 300) Lessons learned from previous studies indicate the key factors contributing to the success of field experience in LIS education include guided learning outcomes; collaboration between stakeholders; and providing a broader context for the experience rather than focusing on tasks. The comprehensive nature of the UX-A program, in which students, educators, and practitioners are engaged throughout the students’ program of study, sets it apart from other LIS field experiences.

Last winter the project leadership team reviewed student and mentor preferences and assigned each UX-A student to a specific setting and mentor for two 150-hour practica, completed over the 2017-18 academic year. Practicum placements include UTK Libraries, Oak Ridge National Laboratory and the ORNL Distributed Active Archive Center, Scripps Networks International, and the United States Geological Survey (USGS).

The UX-A cohort are primarily engaged in two semester-long practica rather than the one semester placement typical of Master’s students. Working closely with SIS faculty, UX-A students and practicum supervisors developed learning outcomes that were intentionally broader than “gaining experience” or “developing a skill set.” These fall roughly into five categories: student success initiatives, library partnerships, space planning and design, library leadership and reputation, and practitioner scholarship. Translating learning outcomes into experiences that are beneficial to both the students and the practicum host depends on meaningful relationships between students and mentors. Mentors can show practicum students the broader context of user experience and assessment by connecting work experience and assessment projects to articulated needs in strategic and departmental plans. For example, as libraries continue to renovate and build informal learning spaces to support student learning, they have become test-beds for observing student behavior including group and individual study habits and research processes. As funding changes in higher education continue to emphasize outcomes, linking student use of libraries and library spaces to academic indicators such as retention, grades, and graduation rates has become a critical need.

The UX-A students’ coursework and co-curricular experiences prior to the practicum placement ensure they are current in the theoretical underpinnings of user experience and assessment as well as trained in a range of user experience testing and assessment techniques. Of particular benefit to the University of Tennessee Libraries is the program’s tie to experiential learning. Participating in the UX-A mentoring and practicum experience allows the Libraries to contribute to campus goals by providing experiential learning opportunities to graduate students, a group that is often overlooked in large-scale initiatives like Experience Learning.

The UX-A mentoring program itself provides students with both theoretical foundations and hands-on training in assessment and user experience, a critical skill set for information professionals. We hope the program gives them a broader understanding of the organization as a whole than one might develop in a practicum devoted to a particular department or task. As a practical benefit we project that the program will give students a significant edge in obtaining positions in assessment and user experience.
Assessing UX-A

UX-A project progress is tracked through rigorously-designed assessment tools created to measure the experience of the students, on-site mentors, and other stakeholders. Key findings of students’ experiences include:

- At the end of Year 1, 81% and 77% of students agreed (strongly agreed or somewhat agreed) that the semester 1 series of online and in-person workshops helped them understand skills relevant to assessment and user experience, respectively.
- Overall, 92% of the students agreed (strongly or somewhat) that the weekly meetings were a helpful venue for sharing information. One participant acknowledged “Having this cohort is incredibly valuable and I very much appreciate the support and structure that it provided me.”
- The majority of the students (83%) agreed that the mentor introductions stimulated their interest in the environments and subject area being discussed.

While students occasionally found themselves overwhelmed by the volume of new material, one student said “all that I learned eventually came together at the end of the semester in finals and our SNS project. Each class gave me a tool that I was able to use in either another class or the SNS project. Applying the knowledge gained was a fulfilling experience.” Another cited the first-year preparation and expressed excitement at the upcoming practicum experience: “I feel more confident in my knowledge from the last two semesters and how they’ll apply to my career. I’m looking forward to starting my practicum and learning more!”

Conclusions

At a time in which the library practitioner and LIS educator communities are contemplating how best to prepare professionals with much-needed expertise in assessment and user experience, UX-A represents an innovative approach in professional preparation. Although the UX-A program is grant-funded, several of the program components could be adapted and incorporated without such support.

<table>
<thead>
<tr>
<th>UX-A: Element</th>
<th>Replication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Design:</td>
<td>Designing a deliberate schedule of courses both inside and outside the LIS curriculum can be tremendously helpful for students, especially with input from professionals in the field.</td>
</tr>
<tr>
<td>Recruitment:</td>
<td>Casting a wide net for program participants was crucial, as were the personal contacts UX-A staff made with prospective students.</td>
</tr>
<tr>
<td>Institutional Resources:</td>
<td>Most of the co-curricular workshops and tutorials UX-A students completed were freely available resources provided by the UTK Office of Information Technology, Office of Institutional Research, or other campus offices.</td>
</tr>
<tr>
<td>Curriculum outside LIS:</td>
<td>Because LIS is interdisciplinary, all colleges and universities offer coursework outside the LIS department that is relevant for LIS students’ future professional placement.</td>
</tr>
<tr>
<td>Partnerships:</td>
<td>UX-A would not be possible without the commitment and participation of partners from our professional community. This project is a reminder that it is imperative for professional programs and their alumni to maintain contact.</td>
</tr>
</tbody>
</table>

Table 2: Suggestions for Replicating Elements of UX-A

While UX-A students must still complete a significant portion of their program, they have already exhibited impressive intellectual and professional growth. It will be exciting to see where their careers take them.
References


Introduction
In the inter-connected world, patrons expect immediate access to information of all kinds. But archivists and curators of manuscripts face a number of difficulties in providing instant access. In the first place, the material to which they are providing access is complex and often requires the context of associated material to be understood. In the second place, the material is voluminous, sometimes comprising hundreds of cubic feet of heterogeneous material, including papers, photographs, and motion picture and sound recordings. And to compound these problems, new formats are coming into the repositories bringing new challenges with them. Solutions intended to cope with large volumes of physical records cannot always help with the storm of electronic records that is now breaking over us. In broadly historical terms, it may be stated that organization was the challenge of the curator of 19th century records; that volume was the challenge of the curator of 20th century records; and that digital creation is the problem of the curator of 21st century records.

Since I entered the profession in the 1980s, the challenges of my career have been primarily with 20th century records, and this paper will address those concerns. However it is the looming needs of 21st century records that make it so imperative that we solve the 20th century problems quickly. We have run out of time. We do not have the luxury of struggling (as we have been doing) to make our 20th century records accessible to the public by using methods of organization developed for the much smaller masses created in earlier centuries. We need to start thinking differently. We need to make access our first priority.

Access by Finding Aids
Any description of personal papers, organizational records, or other archival material is called a finding aid. The term is general because the level of description can vary so much. A single catalog record, much like those that describe a book, can sum up the entire output of a person's life. A guide or inventory can arbitrarily subdivide that life into categories called series. It can also place like items together into folders and describe in a short title what subject or format those items have in common. If necessary, the same guide can describe individual items, but the most common level of description is the folder title grouped under a series title under a collection title (Figure 1).

This organizational scheme can be applied whether the collection is a few boxes or a few hundred boxes, and it ensures that the context of individual items is not lost. This level of descriptive detail, however, is time-intensive. As collections became larger, and repository staff numbers remained static, backlogs of undescribed collections grew. Although this problem was common to many repositories, I will use the American Heritage Center at the University of Wyoming as a case study both for problems and for methods used to alleviate the backlog create faster access to 20th century collections.

Background
The American Heritage Center is the University of Wyoming's repository of manuscript collections, rare books, and university archives. The Center is supported by state taxes and by private donations and endowments. It is a public institution open to anyone who wishes to utilize its resources. No fees are charged for access. The Center's ambitious collecting policy includes the history of Wyoming and the western United States, the American entertainment industry, 20th century mining and petroleum in many parts of the world, the environmental movement, aviation history, and journalism. The full-time staff, from clerical support to director, is usually about twenty. However the staff available for description has ranged from six to two, and these full-time staff members have seldom been able to devote full-time attention to creating finding aids. Some volunteer, part-time, and intern assistance has been available, and, at times, money for special projects has been utilized.
In the mid-1970s the American Heritage Center began to lose control of its backlog. The problem was exacerbated in the 1990s when internet access created a demand for online finding aids, which had to be met by converting all legacy finding aids to electronic ones. By 2003, the Center had acquired 9490 individual collections comprising 87,050 cubic feet of material. Valiant effort on the part of the staff had converted 1890 finding aids to online format. Six thousand further collections had paper-based finding aids but no online presence. Sixteen hundred collections had no finding aid of any kind. Many of these backlogged collections were larger than the average, so although the number of undescribed collections was only 17% of the total, the overall volume was 34%. It was time for some drastic action.
Goal
Our goal was to reduce the time it took to create web-based finding aids for our archival and manuscript collections by experimenting with radical shifts in standard arrangement and description processes. We then had to assess the effectiveness of our experiments and integrate the successful new processes into our normal workflow.

Experimental Methodologies
We began by assessing the effectiveness of our creation process, considering the number of collections completed per year and the number of people doing the work. The latter proved to be an extremely variable statistic as positions fell vacant and were or were not re-filled or part-time and volunteer labor was added to the mix. In the fiscal year of July 2002-June 2003, our staff of six full-time personnel added 63 collections to the website and reduced the unprocessed cubic footage by about 1400 cubic feet, or about 4½%. We calculated that if we maintained the same level of staffing and acquired nothing new, we might expect to clear our backlog in about twenty years. However, neither of those conditions applied. We did continue to acquire new material, and our level of staffing began to fall. In any case, we did not feel that it was acceptable to make our researchers wait twenty years to learn that a collection was available.

In traditional archival processing, the summary catalog record is the final step. The catalog record is created using the hierarchical finding aid as its basis. Our first innovation was to turn this procedure on its head. Between 2005 and 2008 we cataloged 1035 collections, and posted them on WorldCat, without creating any other description at all. This opened the collections to public knowledge without establishing any intellectual control over the content of the collection. Researchers could discover details of content only by coming to the repository and asking for the boxes. This raised very little controversy with researchers, but some archival professionals objected strongly to what we had done. The objectors pointed out that we could not know what we might be exposing or what we might be losing. Both are fair points. Of course, in an ideal world, information that should not be exposed would not be in a public repository, and security oversight would prevent any of it from leaving, listed or not. But our point was that we were not dwelling in an ideal world, so we could hardly make such arguments. What we could say was that improved access was worth some risk.

However, there are risks in what we did, and to reduce these risks in the future we have become much stricter about examining new material coming in. Accessioning staff now make lists of new accretions while the material is being re-boxed for shelving. These lists lack either physical or intellectual organization, but they offer a basic idea of content.

In 1998 the Society of American Archivists introduced an XML standard template to encode hierarchical finding aids for viewing on the web. This standard is known as Encoded Archival Description (EAD), and it allows encoding to any level of description from collection summary to item level. The American Heritage Center began using EAD in 2004 for new finding aids, but the introduction of web-based finding aids immediately created a new kind of backlog. Where previously our collections either had a finding aid or not, now there were three levels: those without a finding aid, those with legacy (non-web-based) finding aids, and those with online finding aids. It became necessary to convert about 1800 collections with legacy or with catalog-only level descriptions to EAD in order to meet the needs of researchers who depended on the internet.

This conversion was accomplished between 2012 and 2013 as a special project by hiring an outside contractor. We gave the contractor lists of OCLC numbers, and she encoded the information from the catalog record into a brief EAD template. She then linked the catalog record to the EAD (via an 856 tag), so that WorldCat users could click through to the online finding aid. Once again we had created access to most of our collections at the expense of detail. These EAD records included description of the general nature of the material but no description of the content of individual boxes (Figure 2).
Figure 2: EAD finding aid without container list, Rocky Mountain Online Archive

(Figure 2: EAD finding aid without container list, Rocky Mountain Online Archive)

(Figure 3: EAD finding aid with container list linked, Rocky Mountain Online Archive)

(Figure 3: EAD finding aid with container list linked, Rocky Mountain Online Archive)
Then in 2014 we converted our legacy finding aids to PDFs and started to link them to the EADs. We did this with any legacy finding aid we had, including the content lists created during accessioning. There were some concerns about legacy lists that included material that had since been separated from the collection (books, especially, had often been sent to the library stacks), but again, the risks were small compared to the benefit of getting information to the researchers (Figure 3).

**Assessment**

Each of these projects slowed but did not entirely stop our production of traditional hierarchically-arranged folder-level finding aids. The traditional finding aids are still the best way to give researchers intellectual access to the content of large collections, but had we stuck to doing only such finding aids we would still be struggling to open our collections of 20th century material. We could not afford to continue the struggle with the 20th century. The born-digital material of the 21st century is already coming into our repositories, bringing with it new challenges of both storage and access. We must have time and resources to devote to these new challenges.

The successes of our methodologies are apparent in our yearly statistical reports (Figure 4). Traditionally, archivists were in the habit of processing one collection through to its desired level of description before moving on to the next. We found it was better to bring all of our collections to a basic level of description before considering which of them might need deeper description. By cataloging everything as soon as it comes in the door, we make sure that it is, at least, visible. Even though there is still a lot of work to be done, we are no longer haunted by a growing backlog of invisible collections.

**Practical Limitations**

Solutions always raise new problems, and, of course, minimal processing has raised its share. There is the problem of inadequate description that puts a greater burden on the Reference staff and the researchers, who sometimes have to hunt through multiple unorganized boxes in search of material that may or may not be there. There is the problem of security and potential privacy violations. Both of these problems existed before minimal processing was instituted, but minimal processing admittedly increased rather than decreased the risks. Ultimately, the curator must be prepared to give up some intellectual control and admit to not knowing all that is in the collection. And neither the researcher nor the curator may assume that the description is either perfect or complete.

**Conclusions**

Ultimately, the final lesson of our experiments was not to try to solve an intransigent problem by doing the same things faster but by doing them differently. During the 1990s we had found every shortcut and exploited every efficiency in our quest to speed up processing, but the metrics showed that our results were inadequate to our goals. At that point I tracked my progress by numbers of collections completed and cubic footage handled. Those metrics were holding me back. In 2005 when we abandoned the concept of completion, I struggled with my statistical report. Cubic footage handled no longer had much application, and collection numbers meant an entirely different thing. In 2013 the meaning of collections processed underwent another major revision, and in 2015 yet another adjustment. I’ve lost control of my metrics, and it is virtually impossible for me to compare what my unit is doing today with what we were doing five years ago, let alone at the beginning of the century.

I’ve realized that at some point, without really articulating it, my goal has changed. In the year 2000 my goal was to organize collection material, but my goal now is to create access. My metrics reflect a range of levels of organization and description, not all of them easily comparable so far as time and effort are concerned, but all of them aimed at the single goal of public access.

The concept of breaking out of traditional arrangement and description patterns was broached by Mark Greene and Dennis Meissner in “More Product, Less Process: Revamping Traditional Archival Thinking,” (Greene and Meissner, 2005). Greene was director of the American Heritage Center when the article appeared. MPLP (as the concept became known) was officially adopted by the National Historical Publications and Records Commission, which is responsible for issuing large grants to assist American archival repositories. The article, however, offered a license to experiment not a new standard. Specific ideas vary according to the needs and resources of different repositories. The projects described here were conceived, under Greene’s direction, by his staff and continued after his retirement in 2015.
## Processing Department
### Fiscal Year Statistical Report

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<th>Full-Time Personnel</th>
<th>Part-Time Personnel</th>
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<td>76</td>
<td>710</td>
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</tbody>
</table>

(Figure 4: Processing Department Statistical Report, American Heritage Center, University of Wyoming)
References


From Engagement to Knowledge Machines
Understanding how digital resources are transforming knowledge

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Introduction
Demonstrating the value of humanities research databases and special digital collections for researchers on teaching and research outcomes is a known challenge for libraries globally. There is an increasing need for libraries to understand and communicate the research and teaching value of investment in content, as well as the impacts the content can be shown to have on the quality and quantity of research outcomes.

Understanding the specific details of these investments is only part of the bigger picture, wherein digital tools and resources are transforming knowledge creation across all disciplines as ‘knowledge machines’ (Meyer and Schroeder, 2015) become embedded into the routine practices of scientists and scholars. This paper will look at this larger transformation of the knowledge landscape by sharing the methods, results and implications for libraries and humanities funding bodies of a joint research project recently (in 2016) commissioned by Jisc, the UK higher education, further education and skills sectors' not-for-profit organisation for digital services and solutions, and the information content company ProQuest (Meyer and Eccles, 2016; Meyer, 2016).

Background
Understanding impact has become something of a minor industry in recent years. In the United Kingdom for instance, the so-called ‘impact agenda’ is linked to exercises such as the Research Excellence Framework (REF) and the requirements by funding councils for grant proposers to identify their ‘pathways to impact’ (Martin, 2011). This has resulted in increasing attention being paid to understanding impacts of all manner of research-related activities. Similar pressures exist in many countries around the world.

More generally, pressures for better accountability in public body spending has tended to increase calls for researchers to establish measurements (e.g. KPIs (‘key performance indicators’) in the language of business) and to demonstrate the value of money that has been spent on resources. Organizations such as the UK’s Jisc, which has partially funded this research, must demonstrate that the money they are spending to provide access to digital resources is well-spent, and ideally must show that these investments contribute to value for the member institutions (Tanner and Deegan, 2011).

However, our research approach to understanding impact has been less concerned with accountability or the impact agenda, and instead springs from what we would like to think is a more collections-
oriented approach: recognizing that most people who create digital resources do so with the idea that the resource will be used, how can we help those responsible for digital resources understand the kinds of uses being made of and the impacts (in the plural) being realized from their resources?

To these ends, from 2008 to 2017, our research team has undertaken a series of projects that have used the TIDSR [1] resource to measure impacts of a number of digital resources. TIDSR (Toolkit for the Impact of Digitised Resources) is a freely available website that gathers advice and guidance for collections owners wishing to better understand the quantitative and qualitative empirical evidence around the question of impacts. The toolkit was initially funded by Jisc in 2008 as part of a project to measure the impact of what was called Phase 1 digitisation, five digital collections that had been digitised with support from Jisc. It has since been used to assess many additional projects, some involving our team, but also many efforts from outside our group [2].

In this project, we used a number of methods (described in more detail below) to look at three digital collections: Early English Books Online, the House of Commons Parliamentary Papers, and The New York Times, each of which we describe briefly next.

**Early English Books Online**

*Early English Books Online* (EEBO) houses approximately 130,000 digital versions of some of the earliest (pre-1700) printed material in English, including books, play scripts, sermons, public and legal documents, religious material and some of the earliest gems of English Literature [3]. It is accessible via subscription to the *Jisc Historical Texts* platform or via subscription on the ProQuest platform. The related EEBO-TCP (Text Creation Partnership) made 25,000 of the community re-key texts (but not images) of these items freely available via open access in 2015, and 28,000 more are available to EEBO-TCP partners and subscribers.

*Early English Books Online* was studied extensively in 2012-2013 as part of a project [4] funded by Jisc and carried out by the University of Oxford Bodleian Libraries in partnership with the Oxford Internet Institute. The report from that project (Siefring and Meyer, 2013) was the starting point from which this project updated the evidence of EEBO impacts. That project focused in particular on EEBO-TCP (Text Creation Partnership), whereas this study expanded the focus to look at EEBO more generally.

**House of Commons Parliamentary Papers**

The *House of Commons Parliamentary Papers* (HCPP) is a digital resource which holds over 3 centuries of official government documents, specifically the sessional papers covering the 18th, 19th and 20th Century, as well as documents dating even further back – from the mid to late 17th century, detailing parliamentary activities of the time [5]. HCPP is available to institutions through Jisc as part of the ProQuest Archives 2014-2017 or via subscription from ProQuest.

The *House of Commons Parliamentary Papers* resource has not previously been studied *in toto*, but a portion of what is now the HCPP (specifically the 18th Century *Official Parliamentary Publications Portal*, part of BOPCRIS, the British Official Publications Collaborative Research Information Service) was included as part of the original Jisc-funded TIDSR usage and impact study (Meyer *et al.*, 2009). Because those data are both older and focused on only one part of the HCPP before it was moved to ProQuest, the data reported here are wholly new findings.

**The New York Times**

*The New York Times* as a digital resource is slightly different to the other two resources we are examining in this paper. The digitized *New York Times* from 1851-2013 is part of ProQuest’s *Historical Newspapers* collection [6], but unlike some of the rarer items in EEBO (and to a slightly lesser extent HCPP) there are many ways for a researcher to have discovered and read newspaper material from the...
New York Times. The newspaper has its own digital archive available to subscribers, relatively recent material may have been read either online or in print, and of course readers can consult the non-digital archives of New York Times material. So, it is important to keep in mind that we have no way of knowing, or even estimating, the proportion of references to the New York Times that are attributable to researchers consulting any given digital resource, whether from ProQuest or elsewhere.

However, we decided to include the New York Times for several reasons: first, it is a more general resource than the more specialized collections in EEBO and HCPP (an assumption which is supported by our findings below), we suspected that the uses were less tied to geographic location than EEBO and HCPP (both of which are of particular interest mainly in the United Kingdom), and we suspected that the ways a newspaper of record is used as a primary resource might differ from the uses to which EEBO and HCPP are put.

Methodology
This paper will share usage and citation data across a range of disciplines related to Early English Books Online (EEBO), the House of Commons Parliamentary Papers (HCPP), and The New York Times (NYT). Quantitative methods of analytics, bibliometrics, and an in-depth survey of researchers were used to build a detailed picture of the use and profile of these resources. This research was complemented by qualitative data gathered through focus groups and individual interviews.

Usage Statistics
UK-based usage statistics for both EEBO and HCPP were provided by ProQuest and Jisc for the period from 2004-2015. These data included results aggregated at the monthly level per UK institution that has a subscription to the collections. The statistics include numbers of web sessions, searches, ‘hits’, document views, PDFs access, full text views, searches and other data. Some of these data are inconsistent across the time period due to changes in access modes and policies, so we have relied on the most consistent fields: [Document/Page Image Views] (ProQuest) and [Page Views] (Jisc) in EEBO, and [Full Texts Accessed] in HCPP. These measures are slightly different in practice, but provide comparable data in terms of trends over time. The absolute numbers, however, cannot be directly compared for any of the variables available.

Unfortunately, we do not have similar data for NYT due to privacy concerns. At the time of the research, while Jisc were able to agree to give us access to relevant UK data, many of the uses of the New York Times were based in the United States. Since the US does not have an organization similar to Jisc, ProQuest was unable to provide institution-level usage data without the express permission of each institution. One possibility for future research is to secure agreement to access usage data from collaborations of American institutions.

The data were provided by ProQuest in Excel format, which were then imported into an Access database where they were cleaned and combined with publicly available data from the 2014 Research Excellence Framework (REF) exercise in the UK, and geo-coded using data obtained from Google Maps. As institutional names were not consistent among the various sources, a table was used to link the different data sources.

Additional data were provided by Jisc from the Historical Texts platform, dating from June 2014 until the end of 2015. These data were also in Excel format, and were imported into the same database and linked with the other data described above.

Bibliometrics
Bibliometric data from 4 separate sources were extracted and combined for analysis. Scopus, Google Scholar, JSTOR, and ProQuest Dissertations and Theses Global were queried to extract
publications that somewhere mentioned EEBO [13], HCPP [14] or NYT [15]. This is not an exhaustive approach, since we know from previous work (Siefring and Meyer, 2013) that at least half of all authors using resources such as EEBO do not include any indication that they have used the digital collection in their work, and simply cite the original source as if they consulted the paper version. Unfortunately, we have no reliable way to discover these uses automatically.

Scopus data were downloaded by exporting the results to CSV text files containing authors, publication details, citation information, and author address information. The data were then imported into Access for cleaning and analysis. The author details and address information in particular is not in a queryable format, so we used bespoke code to automatically extract this information from each record.

JSTOR data were downloaded from JSTOR Data for Research in tab-delimited files, which were then imported into Access for cleaning and analysis.

Google Scholar data were downloaded using Harzing’s Publish or Perish tool, which allows one to download approximately 1000 Google Scholar results based on the number of citations. Further results are not returned by the Google API, and we did not circumvent this limitation.

The Scopus, JSTOR, and Google Scholar data were combined by title (after considerable manually-assisted cleaning based on source and title). The title data are the only items suitable for finding matches between the datasets, but the titles are particularly problematic for a study of this sort as many of the publications use non-ASCII characters in their titles, which the three systems interpret differently and export in non-compatible formats.

ProQuest Dissertation and Theses Global data were provided by ProQuest. The data were then combined and cleaned in Access locally.

Findings
For clarity, EEBO data are reported in orange throughout this paper, HCPP data are shown in blue, and NYT data are reported in plum.

Usage Data
The volume statistics (Figure 1 and Figure 2) show a steady increase in usage from 2004-2015. Usage data from 2004 (for EEBO) and 2006 (for HCPP) from ProQuest and Jisc show an upward trend. The EEBO volume includes data from the Jisc Historical Texts page view volume, which starts in June 2014.

EEBO usage has been increasing steadily at a relatively linear pace. Because the increase is linear, the time for volume to double takes somewhat longer over the time period: whereas usage doubled from 50k page views per month to 100k per month in about 3 years (2005-2008), it stayed at approximately that level until 2011, when usage began to increase again and the next doubling to 200k page views per month took a further 4 years.
HCPP usage also increases in a linear, but less marked fashion. Monthly full-text accesses increased rapidly to 50k by 2007, but have fluctuated between 50-75k full-text accesses per month ever since.

Neither of these is ‘better’ than the other, rather this demonstrates different patterns of use for digital collections. The House of Commons Parliamentary Papers collection appears to have found its audience relatively quickly, and its usage remains relatively stable (taking into account the monthly fluctuations that are tied to the academic calendar).

Early English Books Online, on the other hand, appears to still be finding (and being found by) new audiences. While the growth may be slowing a little in recent years, it appears that there is still more room for growth before it stabilises.

Publication bibliometrics

Of course, use only tells one part of the story.
Bibliometric analysis of sources citing EEBO, HCPP, and NYT were performed using data from Scopus, Google Scholar, ProQuest, and JSTOR. The results reported here focus on the Scopus data, with other results available in Meyer and Eccles (2016) and in the talk related to this paper.

These results show the extent to which the three resources are mentioned and cited in the literature, although they do not necessarily find all uses of the resources that did not cite or mention them by name. As a result, these findings need to be understood NOT to represent “publications using EEBO or HCPP or NYT”, which would be a larger but largely undiscoverable set of publications. This is due to the fact that humanities scholars who are the primary users of these resources tend not to cite materials in such a way as to be able to detect their digital origins (Blaney, 2014).

Thus these results, which focus on publications that either mentioned EEBO or HCPP or NYT are biased towards publications discussing the resources themselves, or that specifically acknowledged them somewhere in the text, notes, or references. The numbers should be seen as the most conservative estimates of the citation impact of the resources, and the actual uses of materials in the collections may be much higher, particularly for EEBO and HCPP, since items within those collections can be cited as standalone documents that make no reference to their inclusion in either collection. That is obviously less relevant for NYT, since materials in the collection are by definition articles from the *New York Times*. Even with these limitations, however, we can nevertheless glean interesting insights into the citations of all three resources.

Looking at the results of the Early English Books Online (EEBO) search over time (Figure 3), we see the expected sort of profile for a digital resource. These data show a steady growth in publications over the last decade, which indicates that the online collections are having a positive impact on scholarship. Publications are steadily increasing over the time period (the data from 2015 should be discounted, as it was based on partial data given the time between publication and those publications being added to the databases we queried).

In addition, we see that citations to the articles that mention EEBO are also generally growing, which indicates a growing secondary impact on scholarship. The apparent decline in citations over the last five years (as indicated by the grey shading) should not be taken to be a particularly worrying trend, as the humanities tend to have a much longer time-scale before publications reach their peak citations than more rapidly moving fields such as medicine or physics, for instance. The actual half-life (i.e. amount of time before a publication has received ½ of all the citations it will ever receive) varies widely by

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**Figure 3. EEBO Publications and Citations in Scopus, 2000-2015**

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discipline. One study by Davis (2013) estimated a citation half-life in the humanities between 4-5 years (compared to as short as 24 months in health sciences), while Tang (2008) calculated a citation half-life in history of 7.13 years. Wiberley (2003), looking at literary studies and art scholarship citation patterns, found that over half of citations in the sources he studied were to works published more than 20 years before their own publications. In addition, a recent study by Martín-Martín et al. (2016) has found that citations to older publications are actually increasing in recent decades, possibly due to the way Google Scholar ranks search results. This would suggest that cited half-life should also be increasing. This decline over the last five years in citations is consistent across all three resources, as we will see below.

It should also be noted that the humanities disciplines that are the primary users of EEBO (and HCPP) tend to be cited less frequently than the sciences or social sciences, where one would expect a higher number of citations for a set of publications this size.

For the House of Commons Parliamentary Papers (HCPP) publications (Figure 4), we see a similar but slightly different pattern of publications. With the HCPP queries, we were able to retrieve fewer publications than with the EEBO search. While this is consistent with the apparently somewhat lower usage statistics for HCPP than EEBO, we suspect based on some test searches that it is also somewhat related to an even more entrenched preference for citing materials in the HCPP collection as if one consulted the paper version, and to include no mention of the reliance on HCPP either in the citations or in the text or acknowledgements of the paper. This makes discovering uses of HCPP via automated means particularly difficult, and is one of the reasons why we also report below on qualitative interviews focused on uses of HCPP, to better understand the types of uses being made of HCPP.

As with the EEBO data, we see a steady climb in publications over the last decade (although less steep than that shown in the EEBO data), and an overall increase in citations to these publications (although again, with a less marked increase apparent). We again see the effect of relatively long delays between publication and subsequent citation by other authors, with relatively few papers written in the past 2-3 years having reached higher levels of citations.

Figure 4. HCPP Publications and Citations in Scopus, 2000-2015

For the House of Commons Parliamentary Papers (HCPP) publications (Figure 4), we see a similar but slightly different pattern of publications. With the HCPP queries, we were able to retrieve fewer publications than with the EEBO search. While this is consistent with the apparently somewhat lower usage statistics for HCPP than EEBO, we suspect based on some test searches that it is also somewhat related to an even more entrenched preference for citing materials in the HCPP collection as if one consulted the paper version, and to include no mention of the reliance on HCPP either in the citations or in the text or acknowledgements of the paper. This makes discovering uses of HCPP via automated means particularly difficult, and is one of the reasons why we also report below on qualitative interviews focused on uses of HCPP, to better understand the types of uses being made of HCPP.

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Finally, in Figure 5, we see the data for the *New York Times*. Unsurprisingly, there are far more publications that reference NYT, and thus there are more citations to those publications. As we will see in more detail below, this is at least partly due to the fact that NYT is of use to a much broader range of disciplines, and furthermore is an established academic source of long-standing as a respected newspaper of record. However, even within the context of a much more heavily cited resource, we can see a few points in common with both EEBO and HCPP.

First, the number of publications citing the *New York Times* has been growing steadily over the last 15 years. Of course there are many factors at play here (including the increasing number of publications overall), the availability of the digital resource would seem to have played at least some part in the growth in references to the NYT. Second, NYT shows the same decline in citations over the last 5 years, which reinforces the fact that this decline is an artefact of citation behaviours and delays between publication of an item and time for citations to that item to accrue, rather than any loss of impact for EEBO or HCPP.

**Disciplinary Spread**

One question we wanted to understand as part of this project was to what extent the three collections were used across disciplines. To help understand this, we created the following visualization (Figure 6). In this visualization, we can see the publications in all three samples overlaid on a standardized map of knowledge (Leydesdorff *et al.*, 2013; Leydesdorff *et al.*, 2015). The underlying map (the grey dots) was constructed by Leydesdorff and colleagues using all the journals in Scopus to calculate the frequency with which journals cited each other. Thus, two journals that cite each other frequently are located close to each other on the base map, and two journals that never or rarely cite each other are located far apart. The resulting map then can be used to visualise which areas of knowledge are represented by any given Scopus set of journals.
In Figure 6, the bottom left-hand portion of the map is where the humanities including English, history, and the more humanities-focused social sciences reside. We can see that our EEBO sample is clustered quite heavily into that bottom left-hand portion. However, even though much of the use is in one area, EEBO is not exclusively used in (for instance) English language and literature publications, rather its influence spreads more broadly into a number of areas. HCPP, on the other hand, has a somewhat broader spread, with more publications in policy areas (middle left), medicine (lower right), and even into some sciences (upper right). This could be interpreted to show that while HCPP had less evidence of widespread use in terms of raw numbers, the uses appear to be spread across a somewhat broader spectrum of disciplines. The NYT data, by way of comparison, has the most spread by far: there are references to the New York Times right across all scholarly domains in the sciences, social sciences, arts, and humanities.

Dissertations and Theses

The ProQuest Dissertations & Theses (PQDT) database indexes doctoral and (to a lesser extent) master’s theses globally. The coverage, however, is uneven, as some countries have a nearly universal expectation that completed doctoral work will be deposited with ProQuest, whereas in other countries few or no universities use ProQuest to archive such materials. In the United Kingdom, relatively few universities use ProQuest; more use institutional archives such as the Oxford Research Archive [16], DSpace@Cambridge [17], Edinburgh Research Archive [18], and many others, while some make use of the EThOS service provided by the British Library [19]. Unfortunately, searching all the individual university archives systematically is not feasible, and the British Library yielded too few results to be meaningful.

However, our main purpose in looking at the dissertation data in this paper is to examine the disciplinary influences of each resource at a more granular level. In the Scopus data above, the discipline can be ascertained from the journal which published a piece of work, but of course that it an imperfect measure. Some journals publish multidisciplinary work, and some articles are published in journals that only somewhat fit within their specific disciplinary boundaries. In the PQDT data, however, we have classifications that have been selected on a per-publication basis by the authors, which should reflect the disciplinary focus at least from the point of view of the author.
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<td><strong>Total theses classifications</strong></td>
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*Figure 7. Top 30 Subject Classifications in Theses*

The EEBO theses are, as one might expect, heavily weighted towards British and Irish literature, with 1,391 instances of theses classified in that category. European history is the next most frequent (n=1,168), followed by close to one thousand each on the topics of religious history, philosophy, and art history.

HCPP theses, again consistent with all the other data reported above, are less dominated by a single classification, with political science in the top spot with 34 instances and European history at 30, followed by a smaller number of theses on public policy, law, public administration, and international relations. We also see a pattern similar to that shown in the overlay maps above: topics extending well into the social sciences including African history, Canadian history, economics, and women’s studies, for instance. This disciplinary diversity is, of course, even more marked with the NYT data. Not only are there far more dissertations referencing the *New York Times* (as with the journal data above), the range of topics extends across history, politics, gender, communications, policy, management, art, economics, health, and philosophy, among many others.

**Discussion**

There are clear patterns of increasing use of digital resources over the last decade, and these patterns are consistent across a variety of collections and using a number of different measures. EEBO page views (on ProQuest and Jisc platforms) have increased 7-fold over the last ten years and those for HCPP have doubled. The number of publications clearly indicating the use of EEBO, HCPP and NYT have increased steadily over the past 15 years following a similar upward trend, although the scale of publications referring to each resource is very different and the slope of each is specific to the resource. (For instance, publications referring to EEBO increased from 15 in 2005 to 79 in 2014, while those referencing the New
York Times increased from 5,787 to 12,669 over the same time period, as measured using Scopus data.) The paper reports on scientometric measures from Scopus, Google Scholar, and ProQuest Dissertations and Theses to show publication patterns, citation impact, disciplinary publication patterns as shown on an overlay map of science, and distribution of impact by topic, subject classification, and discipline.

These primarily quantitative scientometric measures reported here were supplemented by both survey and interview data that help to put the metrics into contexts of use (Meyer and Eccles, 2016). These additional data show that while humanities scholars rely heavily on specific digital collections that they return to regularly, they also rely on a huge array of complementary resources. So in a survey of 238 EEBO users that used an open-ended question to ask them to identify other resources that were most important for their work, we found that in addition to EEBO these scholars named 136 other resources that were important to their scholarship, and many of these were named by only a single scholar. This suggests that supporting a diverse scholarly landscape is important when there is little mutual dependence and low task certainty (Whitley, 2000), such as is often true in the social sciences and humanities.

To return to the title of this paper From Engagement to Knowledge Machines, we have argued elsewhere (Meyer and Schroeder, 2015) that the digital tools and resources which have become increasingly embedded in academic research across the sciences, social sciences, and humanities are contributing to the creation of new socio-technical networks of people, resources, computers, and the connections among them to form knowledge machines. These knowledge machines are not machines in the simple sense of a piece of stand-alone technology providing work, but instead are machines in a metaphorical sense. These metaphorical knowledge machines rely on the synergies of their constituent parts to generate power and the ability to perform work, and amplify their power via the network effects that are realized as the socio-technical networks scale up to include more human and machine participants (Tsvetkova et al., 2017).

Thus, we would argue that digital resources such as Early English Books Online, the House of Commons Parliamentary Papers, and the New York Times should not be thought of in isolation, but as part of a bigger story. This bigger story has been consistent throughout our work over the last decade: digital resources have been a clear win in the humanities disciplines, as scholars have quickly grown to rely on digital resources and to embed these into their work. The story is not one about engagement (or lack thereof) with individual resources, but the changing ecosystem of knowledge that digital scholarship becoming the new normal has ushered in.

Challenges remain, however. Digital humanities approaches to research are still seen by some to be a separate (and often slightly distracting) endeavour compared to mainstream humanities scholarship, and as a result the simple engagements with digital resources (such as viewing a digitized page essentially as an easily accessible replacement for visiting an archive to see the printed version) outnumber the more complex engagements (such as computational analysis of large datasets, or using linked data to combine evidence from multiple data sources). Of course, truly large-scale computational approaches that incorporated data from multiple resources might not be discovered via the methods we have focused on in this paper (since the individual resources might not be cited, since they are just ‘data’). This is why we have pursued, and will continue to pursue, understanding scholarly practices using more detailed qualitative and interpretive methods.

Knowledge machines are complex, ever-changing, and emergent. The number of people who contribute to them and who rely on their power are growing, the number of digital resources contributing to their abilities are growing and becoming more complex via linking and the creation of new and powerful
methods for extracting knowledge from them, and the practices of digital scholarship are becoming the new normal across the disciplines.

**Limitations**

The work reported here has been primarily focused on the UK and (to a lesser extent) the USA thus far, so there are limitations to understanding these specific results outside these national contexts. However, the main points still apply, and hopefully will suggest to the audience additional ways to think about digital resource use and impact more generally.

**Disclosure**

This research was supported with funding from ProQuest and Jisc for work done through Oxford University Consulting.

**Acknowledgements**

The authors wish to thank Jisc and ProQuest for funding this research, and also for providing data. In particular, we would like to thank (at Jisc) Paola Marchionni, Peter Findlay, Scott Gibbens, Alex Idris-Thomas, and (at ProQuest) Zoe Loveland, Jacqui Gilchrist, Dan Hepp, and Doug Duhaime for their contributions to this work. We are also indebted to the participants in our interviews and surveys who have generously provided their time and thoughts.

**References cited**


Tanner S. and Deegan M. (2011), "Inspiring Research, Inspiring Scholarship: The value and benefits of digitised resources for learning, teaching, research and enjoyment", available at


Endnotes

[8] http://www.ref.ac.uk/
[10] https://scholar.google.co.uk/
[13] Details of the query used to extract EEBO data from Scopus: ALL("eebo-tcp" OR "eebo tcp" OR eebo OR "early english books online" OR "quod.lib.umich.edu/e/eebogroup" OR "www.textcreationpartnership.org/tcp-eebo" OR "www.bodleian.ox.ac.uk/eebotcp/" OR "eebo.chadwyck.com" OR "data.historicaltexts.jisc.ac.uk/view?pubId=eebo")
[14] Details of the query used to extract HCPP data from Scopus: ALL("House of Commons Papers" OR "House of Commons Parliamentary Papers" OR "parlipapers.chadwyck.co.uk")
[15] Details of the query used to extract NYT data from Scopus: REF("*new york times*") AND (PUBYEAR > 1999) AND (PUBYEAR < 2016)
[16] Oxford eTheses on ORA: http://www.bodleian.ox.ac.uk/ora/oxford_etheses
[17] DSpace@Cambridge: https://www.repository.cam.ac.uk/
[18] Edinburgh Research Archive: https://www.era.lib.ed.ac.uk/
[19] EThOS at the British Library: http://ethos.bl.uk/
This brief paper explores how to use assessment to bring major strategic library initiatives to implementation while encouraging staff understanding and promoting enthusiasm. Assessment can be used to help library staff accept the nature of disruptive change embodied in current strategic initiatives, and can be especially impactful when workflows embed it into early steps of strategic planning. That process and the knowledge gained could also provide opportunities for assessment librarians to develop assessment tools and models to make intangible strategic visions like social justice, diversity and inclusion, and open access for all into goals that are measurable, thus enabling libraries to offer evidence to the world of our impact on society.

The Vision is Not a Road Map

The MIT Libraries recently released the Future of Libraries task force report (Massachusetts Institute of Technology, 2016). It advocates for disruptive changes to the focus of our long-term as well as daily work. Staff, from frontline employees to managers and department heads, have been trying to decipher their place in this new vision. Frontline staff cannot seem to find themselves in the vision because they are looking at the trees and not the forest (“I’m still going to need to help individual users,” or “But I will always have to add metadata to provide access” so “how will my daily work actually change?”). Managers and department heads are trying to massage the message with false promises of no immediate change. Reality is that things will change, and in order to have a “bias toward action,” a phrase that has taken on the reverberation of a mantra after eighteen months of planning, all library staff have to understand this new reality. Assessment techniques, put in place early in the process, can help solidify links between the intangible and somewhat amorphous vision and the actual work that will help realize that vision.

One of the major problems with strategic visions is that people who are not used to working at the 80,000 foot level read them too literally. When someone reads a recommendation that proposes that “the MIT Libraries must be a global library serving a global university and its audiences,” frontline staff immediately ask, “does this mean we are going to answer questions from everyone in the world now?” When someone sees the suggestion that “The MIT Libraries will provide comprehensive digital access to content in our collections and/or content needed by MIT’s global community …,” they assume that we will continue to digitize exactly as we always have, with the current machinery and current staffing and current processes. They immediately worry about capacity and workloads, not comprehending how their current processes can handle such a major challenge. The recommendations are seen as literal descriptions of immediately actionable work.

A Case Study: From Vision To Clarity

At MIT, I have been working with one of the associate directors overseeing the implementation of the Future of Libraries vision. Although she has regularly depended on me to understand assessment of workflows and goals, she did not immediately consider me directly relevant to the strategic process. For several months, I reiterated my message that staff were not understanding the vision because they were looking for concrete meaning and activity in an intentionally open vision, and that assessment principles could help impose that kind of language on the planning process. I described how I might use my assessment role to ensure that any next steps would move toward a road map that was both focused on outcomes (the actual intended end result, the intentional impact) — which speaks to the vision itself — while clarifying immediate objectives (specific results that can be achieved within a certain timeframe with available resources), deliverables (products resulting from the activities to achieve the objective), and tasks.
After some negotiation, I was embedded into the first stage of the Future of Libraries Task Force report process, what we referred to as the “pairs process.” In this process, two people from different directorates or departments were paired together to generate descriptions of “target states” for each of the ten recommendations in the report. The target states were to capture what this recommendation would look like if we had endless time and capacity to get there, as well as what it would look like in two and five years from now, using resources that we currently have, and with an influx of resources. Each pair was asked to meet with me twice.

In the first meeting early in the process, my role was to teach the pairs to distinguish between target states, outcomes, deliverables and tasks. In the Task Force report, while the vision was well articulated, it was unclear what success would actually look like in practice; the vision could potentially be expressed as countless successful end results. Establishing target states would make clear what success, given MIT’s goals, the Libraries’ values, and the full description of the recommendation (which was several paragraphs long each), would mean. By defining target states as outcomes, the pairs would enable frontline staff to understand the anticipated impacts that the recommendation would have. By treating deliverables as potential products of the each initiative rather than the target state itself, success was not linked directly to the deliverable, which may or may not actually be successful, but instead was linked to the intended outcome. Tasks would be relegated to the road map, a future phase of the strategic planning process. So for example, an intended outcome (i.e., a “target state”), might be a well-defined space that communicates and promotes the print-to-digital continuum of collections. A deliverable might be a specific, imaginative space that sets up access to content to enable seamlessness from physical to digital, but the success would not simply be that the space was created. Rather, the success would be how well the space achieved the outcome.

The second meeting was intended to be late enough in the process that target states had been drafted, but while there was still time for editing. I hoped to ensure that the target states were written in such a way that in 6 months, 18 months, 2 years, or 5 years, anyone could look at the target state and then at our activity, and be able to understand whether progress had been made or success had been achieved. Working with the pairs again, I reviewed the target states for language that explained the outcome. The target state was not “a center devoted to information science research”; it was “to be an major influence on the state of information science research in the world,” perhaps via such a center. The target state was not “to create an index that points to all of MIT research;” but instead would be a virtual space where faculty and researchers could learn about each others’ research and potentially collaborate, where an index was one mechanism for achieving this outcome.

With targets expressed as outcomes, and deliverables as examples of possibilities, staff would be able to envision their own roles in the success of the recommendation.

**Broader Implications**

A strategic vision is only a very early stage in the process of action. A vision is not an objective, is not actionable, and is not a deliverable. The language of a vision is not the same as a road map; it does not imply anything about how to get from where we are to where we are going. The process of implementing a strategic vision demands the incorporation of the language of measurable objectives, targets, and outcomes. The basic assessment principles that require librarians to understand intended outcomes in order to show evidence that success is achieved are the same principles that can lead a vision to implementation.

How can assessment librarians become more involved in supporting assessment of progress toward their own institution’s strategic goals? Individual assessment librarians should engage administrators in conversations about the gap between the vision and the actual work that staff are doing, and promote a better understanding of assessment principles. As senior library staff define steps towards implementation, their comprehension and use of well-worded outcomes, targets, deliverables and tasks diminishes that gap, and in turn encourages staff to be willing and enthusiastic partners in the process. Likewise, the right language at each of these steps enables more targeted and effective assessment of progress towards a library’s goals.

One obstacle to this idea is that assessment librarians or those tasked to do assessment are not always invited to participate in strategic planning. We might be consulted only after the road map is set or even already implemented, and we are asked to...
find measures and data that may not, in the end, lead to understanding of our progress toward the vision, because neither the road map nor the vision provide a description of the hoped-for measurable outcomes.

At the same time, the major statistical tools that our profession relies on, such as standards, governmental data requests, and library organization accreditation surveys ask for data that cannot help with the kinds of strategic planning that is happening now. Current assessment standards were not developed to answer questions about 21st century strategy. Even as little as twenty years ago, strategic visions for libraries were

- to have a broad and deep collection appropriate for our users — so we count numbers of titles and volumes;
- to grow our information literacy and readers’ advisory programs — so we count encounters with users;
- and to ensure that our spaces were engaging and inviting, so users would come to us — so we count visits to library spaces and web sites.

Library work in assessment is not perceived as being connected to strategy because our tools and the resulting data are not relevant to major forward-thinking strategic initiatives. Even assessment research that attempts to show impact does not offer tools for forward-thinking strategy, at least not yet. It’s not that any of these are unnecessary for assessment, but these tools and resulting data do not show library administration that we can have a role in helping the library to achieve its strategic goals.

Today, the MIT Libraries’ vision and that of other libraries thinking strategically about the future goes far beyond our current data-gathering efforts. The MIT Libraries’ vision is to grow and expand open access to collections worldwide, to make our collections accessible to even the least-resourced nations, to raise the profile of marginalized communities through expanded collections and new search algorithms, to make our collections visibly browsable in the virtual world, and to teach not how to search but what it means to work with commercially available search engines and proprietary products. As a group within the profession, assessment librarians need to work with library organizations as well as governmental agencies to gather data that reflects these new strategies.

This data in aggregate could have powerful impact. Data that illustrates libraries’ success in moving towards these kinds of strategic initiatives could generate a greater message that represents all libraries. What if it was a platitude that libraries promote social justice, because we had data across the library universe that showed in all kinds of ways that individual libraries are doing so? It is not just an idle dream that libraries could break systemic injustice; as each library endeavors to generate more open access materials, to share more broadly with other institutions, to reveal hidden marginalized collections and to make these openly available, libraries as a whole are making a difference. If library data showed how libraries have engaged commercial entities so that they no longer privilege the scholarship of the developed world or ignore work by or about people of color, women, or the LGBTQ community, libraries could become logical partners with other major players in this context. That requires that assessment principles be rooted within individual libraries’ strategic planning, and that statistical collection for agencies that are measuring libraries’ success include measures that show progress towards these major initiatives.

**Conclusion**

Library staff at all levels can be overwhelmed by the disruptive changes embodied in our strategic visions. They can be confused or misled by visionary language, which may be amorphous or inexact, or they may simply be unable to imagine how their daily work can get done while they add new work to achieve the vision. Assessment principles applied early in the strategic planning process offer a way to move strategy to implementation with language accessible to all staff. As individual libraries work to embed assessment into strategic planning earlier in the process, it would behoove library organizations and governmental agencies to adapt the tools and data requests to better address the needs of future-thinking organizations. Maybe some day, combining individual library assessment at national and global levels will begin to reflect progress towards a shared future.
Reference List
Generating bespoke value and impact evidence to inform a thought-leadership approach to service engagement

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Introduction

‘The question confronting library leaders now is how they can increase the value of the library and more strategically articulate it in terms of the new agenda around learning outcomes.’ (Jolly (2015) quoted in Chad and Anderson, 2017, p.4)

This question was a key driver for the development of our library service delivery model when it was initiated eight years ago. Through that model we aimed to create a transferable framework to inform the design of outcome-centred services and to evidence the value and impact of engagement with those offers. Today that model is now fully embedded and is enabling us to successfully articulate and evidence our role, relevance and expertise as contributors to the learning outcomes of the university.

This paper will explore the new ways in which we are currently expanding the potential of our model to inform and evidence our role as thought-leaders in contributing to the wider learning outcomes of the university and to successfully evidencing this contribution and the impact of it, to the university executive. Our first example will demonstrate how we are using our model to generate and articulate bespoke evidence with which to inform strategic action planning with faculties, through relationship management. A further example demonstrates how the model has enabled us to articulate the wider impact and contribution of our services, through innovative approaches to annual reporting and data-visualisation.

The service delivery model

Our new service model was a response to drivers that were emerging from within the university and from the sector as a whole. There was increased accountability for library contribution to university outcomes around student experience, progression and success; an imperative to effectively demonstrate value and value for money and an increasing need to demonstrate agility in service design and evaluation in a rapidly changing HE environment. We therefore, required a model that would provide, ‘compelling evidence that directly links … activities to positive outcomes.’ (Jantti and Cox (2010) quoted in Jantti and Cox, 2012, p.309)

Our model was deeply influenced by strategic marketing techniques and the marketing principles of customer-centred, outcome-focussed service offers were to define it. It was evident that what we required was not a stand-alone performance model but an all-encompassing service delivery model, which would enable us to design and deliver service offers which would inspire engagement and to evidence the value and impact of that engagement in a wider institutional context. This evidence was imperative for a number of reasons:

- To generate evidence with which to exemplify the expected benefit and impact of engagement with our services and therefore to inspire customer engagement.

- To facilitate reflective acknowledgement on the part of the customer as to the difference engagement with our services has made to them and to enhance their ability to articulate this difference.

- To generate evidence to support the assertion of our role, expertise and relevance thereby encouraging equal and active partnership with faculty.

- To generate evidence to articulate and demonstrate to stakeholders how through that impact upon our customers, the library is impacting upon the learning outcomes and wider institutional priorities of the university.
The result was the creation of an all-encompassing service delivery model. The key features of which are depicted in Figure 1. below.

![Service Delivery Model](image)

*Figure 1. University of Sunderland Library Services, Service Delivery Model*

It appears that we were somewhat ahead of the curve. Since the initial creation of our model the introduction of student fees and the sea-change towards consumerism has brought outcome and value into sharp relief. As predicated in ‘An Avalanche is Coming’ (Barber, Donnelly and Rizvi, 2013) ‘University leaders will challenge the university as a whole, and individual departments, to answer the question, ‘What’s so special about you.’ (Barber et al., 2013. P. 50) We need to be able to confidently articulate the role of the library as expert in contributing to organisational outcomes. The reality of this is evident in 2017 when, ‘student success continues to be an important focus for higher education, where the trend towards performance-based funding and accreditation criteria includes emphasis on learning outcomes, retention and matriculation.’ (Chad and Anderson, 2017 p. 3) Having been embedded before the current analytics-based culture had gathered speed, our model is today enabling us to respond to university demands for evidence with agility and considerable impact.

In the past five years our model has engendered considerable success in increasing student engagement and in articulating the contribution of this engagement to university stakeholders with positive results such as increased funding and resource. Our current challenge is to use our model in to inform a more strategic relationship with academic staff in order to further enhance engagement and contribute to university learning outcomes and to evidencing the impact of that contribution to university executive, by employing innovative approaches to service-wide annual reporting.

Thought-leadership
‘Thought-leaders are the go-to people in their field of expertise. They are trusted sources who move and inspire people with innovative ideas; turn ideas into reality, and know and show how to replicate their success.’ (Brosseau, 2014).

Our aim was to ensure that faculty and the university as a whole clearly understand the contribution the library can make and the impact we can have upon achieving the strategic objectives and outcomes of the university. In an environment when our services are intentionally designed to become increasingly blended, mobile and embedded, the increased risk of library invisibility made this an even greater imperative. We wanted to use our model to design services that were highly relevant to priority learning outcomes and to successfully articulate the relevance of those services so as to assert our expertise - thereby...
encouraging engagement and academic partnership in service design. We wanted to assert ourselves as library thought-leaders.

**Relationship management**

We aimed to assert the library position as equal partner with faculty in the delivery of learning outcomes and to create opportunity to articulate the impacts of that contribution in order to enhance engagement and to ensure recognition. Inspired by the work of the Relationship Management in H.E. Libraries Group, we committed ourselves to a relationship management approach to liaison. The role of the librarian as a relationship manager is one that is emerging as a key competency in today’s HE sector. Relationship management makes a conscious shift from the academic support role to one of expert, active and trusted partner. ‘They (liaison librarians) offer campus more than support; they are partners and leaders, helping faculty and students to navigate a rapidly changing landscape.’ (Jaguszewski and Williams, 2013, p.16) Our liaison librarians therefore become thought-leaders in their professional role.

Informed by innovations at the University of York and by others in the sector we decided to adopt faculty action plans for the academic year 2017-2018. It was our intention that our model could inform these action plans in two key ways. Firstly, it enabled us to shape and frame our service offers and our articulate them in alignment with priority academic outcomes thereby inspiring academic recognition, understanding and buy-in. Secondly it enabled us to generate bespoke evidence, which would exemplify our role in delivering learning outcomes and our impact upon them. We defined a number of service objectives for our action plans, one of which was the need to enhance engagement with and value for money of our journal collection. We will use this example to highlight how the key features of our model supported action planning in this area.

**Example One: Thought-leadership through faculty action planning**

**Aligning library and university strategic objectives**

If the library is to actively contribute to the outcomes of the university and effectively articulate this contribution, then the desired outcomes of both must be aligned.

Library priorities for our journal collection centred upon ensuring value for money in terms of engagement and the ability to evidence the impact of this engagement in order to lever resource and assert our contribution to learning outcomes. Wider university priorities centre around value for money, attainment and progression which in this context translated to the faculties in terms of specific targets such as increasing the level of 2:1s and nurturing a research-based curriculum. The aim of our action planning with academic staff was to negotiate clear objectives and actions regarding engagement with journals in order to support these priorities.

**Defining outcome-focussed service offers**

The effect of framing our service culture around the human experience of value, impact and outcome cannot be underestimated and changed our entire service culture. Firstly, it facilitated a shift towards a focus on framing, delivering and evaluating our services in terms of pre-packed, blended holistic offers rather than the separate systems and services that make up those offers. In terms of journal engagement these were service offers focussed around our discovery tools; the wider discovery landscape and our study skills offers, with outcomes contextualised by the university assessment criteria and the aspiration of the successful completion of an assignment. We therefore re-defined and articulated our journal offers around these wider outcome-focused priorities.

**Generating qualitative evidence**

Our model was designed to generate evidence of the value, impact and outcome of our service offers. We have had considerable success over recent years in articulating targeted examples of this evidence to our customers and stakeholders. We now had a different objective. We needed to use our model to generate bespoke evidence regarding students’ current experience of engaging with academic journals in order to inform our strategic planning in this area with academic staff.

In order to articulate and capture the value and impact of our holistic service offers we needed to look wider than usage data and focus instead on the true nature of engagement. ‘Engagement requires an outward focus. By understanding the changing needs and practices of scholars and students, librarians can help shape future directions for the library and advance the
library’s mission within the larger institution.’ (Jaguszewski and Williams, 2013, 4.) Understanding engagement concentrates our focus on the person, rather than the system or service and to define and articulate how that system or service can bring about a meaningful outcome for that person. It calls for us to find ways to articulate outcome in terms of human experience, ‘to embrace the human objectives like success, happiness, productivity, progress, relationships, experiences and impact.’ (Neal, 2011, p. 427) To design our services by asking, ‘How can we help users attain their goals, achieve wellbeing, realise benefits, move forward, make personal connections, participate fully and have significant effect on their worlds through us?’ (Neal, 2011, p. 427) This calls for new emotional intelligence and insight into the human experience and highlights the need to frame and shape our service offers in a much more holistic context than in the function of specific systems. This ‘humanising’ of service delivery called for a rethink of service culture and the nature of our customer relationships because to shape our services to speak to human need, aspiration and emotion and to capture evidence of those experiences we needed to create opportunities to observe and interact with our customers on a very personal and human level.

We needed our model to define a strategic approach to nurturing and capturing qualitative evidence that would enable us to to articulate real human narratives regarding the value and impact of our services. As Donna Lanclos writes, ‘analytics such as ethnographical data are tailor made for the grounded storytelling in which libraries and other parts of higher education need to engage so as to draw resources and attention to their value.’ (Lanclos, 2015, p.108)

Facilitated conversations

In order to ensure the relevance and currency of our service offers and capture bespoke and timely evidence, it was apparent that on-going data collection could not provide us with relevant agile intelligence we required. We therefore took the decision to employ a snapshot approach to evidence capture. As part of the annual strategic planning process we would identify in advance the service offers that we wished to shape and the evidence that we needed to generate and capture. We would therefore, ‘make sure that we are asking the right questions in the beginning and finding new ways to expose and analyse the data to contribute to answering the questions.’ (Showers, 2015, p. xxxvi)

It was also apparent that unsolicited customer feedback was not providing the targeted evidence we required. In order to establish a strategic approach to evidence generation we aimed to create opportunities through planned interactions or ‘facilitated conversations’ with our customers in order, ‘to encourage students to reflect upon how they are learning, or to initiate a conversation... instead of using a system to assess students' performance or ability.’ (Shacklock, 2016, p.5) These conversations take the form of a series of service-wide campaigns across the academic year. Examples of these campaigns can be viewed at Pinterest. (Pinterest, 2017)

It became apparent to us that in order to support customers to form value judgements and articulate the actual outcomes and impacts of our services, we needed to proactively facilitate our feedback opportunities with them. Asking customers to make non-contextualised judgements about the wider impact of our services upon their learning outcomes was not going to deliver the meaningful evidence we required. The contribution of strategic marketing cannot be underestimated here. As Kotler and Armstrong say, ‘The aim of marketing is to create value for customers and to capture value from customers in return.’ (Kotler and Armstrong, 2009, p.26) Influenced by this theory of ‘value proposition’ we realised that we needed to actively articulate, contextualise, exemplify and evidence the learning outcomes that customers could expect from our services if they were to fully to understand the benefit of engaging with them; be equipped to reflect upon the actual outcomes they had brought about and articulate the wider impacts upon their learning outcomes and experience. As Chad and Anderson conclude, ‘institutional pressures will demand that librarians are even more strategic in positioning their value propositions in the context of the a wider institutional approach to teaching and learning outcomes.’ (Chad and Anderson, 2017, p. 10)

Therefore, in practical terms, in each campaign we deliver we embed our articulation of the expected outcomes of our services; build-in facilitated and supported opportunities for customers to reflect upon the actual outcome, value and impact they have brought about and the means by which to capture evidence of this impact.

In terms of the journal engagement campaign the expected outcomes of our journal offer were articulated by means of:
A short three-minute video articulating the expected outcomes of engaging with journals. This was shared with large cohorts of final year students in all faculties.

An on-campus and online campaign supported by library staff.

The embedding of core journal messages into study skill sessions.

The opportunity for reflection and facilitated feedback was achieved through a series of campus events whereby library staff facilitated fun, informal events in university buildings and interacted with students. Impact evidence was collected by means of feedback cards shared on displays and through short video and social media messages created by students. As a result of those events we received over six hundred pieces of insightful, reflective feedback.

A rounded narrative of evidence

Through each campaign we are therefore able to successfully generate bespoke qualitative evidence, which captures the human experience of engaging with specific services and provides examples of the wider value and impact of them. Our aim is to blend this quantitative evidence with our quantitative usage data, into a ‘rounded narrative of evidence. We believe that through this rounded approach, qualitative evidence brings human context to the quantitative data and creates an accessible, meaningful and impactful reflection of the impact and value of engagement. Ben Showers writes of this approach, ‘A mixed-method approach where both quantitative and qualitative approaches are taken, enables the service to understand what the user actually does and the context for these actions and the experience that those interactions provide. The coalescence of data is incredibly powerful.’ (Showers, 2015, P.81)

The AMOSSHE Toolkit (AMOSSHE, 2011) was particularly valuable in illustrating our ‘rounded narrative’ approach to our teams and has been employed with success across our student services team. This toolkit is designed to help student services’ professionals combine quantitative and qualitative data-sets of inputs, outputs and outcomes, in order to form value judgements. It provides a valuable framework within which to consider the benefits of combining output and outcomes in forming judgements regarding value and impact.

At the end of our journal campaign we had successfully crafted our rounded narrative of programme level data with which to inform our action plans. We had data-sets of:

- Quantitative data related to journal usage; journal coverage on reading lists; reading list usage and study skills engagement.
- Qualitative evidence regarding students’ perception of using journals and academic tutor’s engagement with journals in supporting their teaching and learning.
- Qualitative evidence derived from the experience of the liaison team regarding academic staff engagement with journals.

Presenting the rounded narrative of evidence

A key aim of our model was to rethink how we articulate and present this ‘rounded narrative’ of evidence. In the past our approach to reporting had usually been to present individual service or system data and analytics alongside a textual narrative. It was apparent that we had a number of new challenges:

- Our service offers were increasingly blended and complex and therefore we needed to combine data-sets in order to articulate their holistic value and impact.
- The more seamless, embedded and mobile our services became the greater the risk of the loss of library identity and the increased invisibility of our role.
- The imperative from stakeholders for succinct, timely and impactful reporting.

It became apparent to us that data-visualisation techniques were key. ‘Data-visualisation is the graphical display of abstract information for two purposes: sense making … and communication. Important stories live in our data and data visualisation
is a powerful means to discover and understand these stories, and then to present them to others.’ (Few, 2013) The infographic approach in particular provided an effective alternative to written reports. They enable us to structure our evidence sets into visual formats which are both impactful and accessible. Online infographics also enable us to showcase the human face and voice of evidence by incorporating dynamic media such as video.

Our innovations in data-visualisation began with an understanding of the difference between:

- Data: the raw qualitative and quantitative evidence e.g. Data on a spreadsheet.
- Analytics: the evidence organised by pattern or trend e.g. Graphs.
- Insights: the value and intelligence obtained through the use of analytics e.g. The story or narrative.

In terms of our journal engagement campaign, our data was recorded and collated at a programme level using Google spreadsheets. It was then analysed, collated and graphically represented. Insights were then drawn from these analytics and presented in terms of an online infographic. (Grieves and Halpin, 2017) The next step was to engage our data, analytics and insights to inform and evidence credible action planning with the faculties.

Using our rounded narrative to inform action planning
It was our intention that the bespoke programme level evidence produced by our model would inform and underpin our strategic action planning and negotiation with academic staff.

Although the liaison team had considerable expertise in communicating with academic staff, this formal action planning called for a much more strategic approach to relationship management. ‘As advocates, they (liaison librarians) have become the library’s ‘sales force’ speaking on a wide range of topics and trends in higher education, influencing and persuading campus stakeholders on important issues, and serving as ambassadors of change.’ (Jaguszewski and Williams, 2013, p.16)

In some cases this was the first time that some of the team had used data to inform strategic planning. Since beginning this process it has become apparent that data-analysis skills are becoming increasingly important to the library management and liaison role. As the JISC Learning Analytics in Higher Education report states we must, ‘aim to produce an analytics mind-set across the institution … to extend a culture of data-driven decision making.’ (Sclater, 2016, p.5) With this in mind workshops were hosted in order to support the liaison team in employing their faculty experience to interrogate and interpret our evidence in order to inform and underpin programme-level strategic actions. This increased confidence in the use of data for strategic planning will hopefully enhance our thought-leadership in the new relationship management role. ‘Liaisons are now playing two roles, that of advocate and consultant, both with an emphasis on campus engagement.’ (Jaguszewski and Williams, 2013, p.16)

These workshop sessions proved insightful. Librarians analysed usage data regarding journal coverage on reading lists and journal usage and for the first time could support this quantitative data with relevant qualitative evidence of customer experience and opinion. In many cases the anecdotal feedback from students evidenced hunches and patterns that the librarians themselves had been aware of but were up until now unable to evidence, particularly in relation to the level of engagement with journals demonstrated by academic staff in some subject areas. The evidence therefore identified and underpinned relevant strategic objectives for each faculty and provided the liaison team with the confidence and credibility to take these negotiations further so that, “we will surely see them (librarians) play a closer and more active partnership role with academics in the acquisition and curation of course-specific teaching and learning resources.” (Chad and Anderson, 2017, p.10)

The result has been a set of faculty action plans which have identified and evidenced specific draft objectives focussed upon:

- Journal inclusion in module reading lists and the active encouragement of engagement through the curriculum.
- Student and academic staff awareness and engagement with the wider discovery landscape and suggestions to enhance this engagement.
- The embedding of journal related study skills into the curriculum.
• Objectives to work in active partnership with academic staff to enhance journal engagement.

In the same way as we created opportunity to share our service offers with students through our campaigns, so our action planning will create opportunity for face to face engagement with academic staff. The liaison team are scheduled to meet with faculty staff in September 2018 to discuss and share their action plans and our evidence. The value and impact of these action plans will be assessed using our model throughout 2018.

Although the action planning process is not yet complete, it is apparent to us that our model has enabled us to formulate outcome-focused service offers around journal engagement and to produce highly relevant and impactful evidence of students’ current experience of journal use, which has underpinned our strategic priorities for each faculty. This process has informed and added credibility to our action planning initiative which will help to assert our role as thought-leaders and equal partners with academic staff and ultimately enable us to evidence our contribution to specific learning outcomes.

Example 2 Conveying thought leadership through annual reporting

Over the past two years we have employed our model to reinvent our annual reporting to the university executive. Within the current H.E. climate of accountability and when our services are becoming increasingly holistic and embedded, it is becoming ever more necessary to effectively demonstrate the value and impact of our service offers and our contribution to the wider priorities and outcomes of the university. We cannot risk that our expertise, role and relevance become invisible.

Previous annual reports had taken the form of a multi-page textual report supported by analytics. The university requested qualitative feedback in the form of a ‘You Said, We Did’ report. We felt that these reports could not begin to reflect the service breadth, interconnectivity or wide-reaching holistic contribution of today’s library.

As a result of each campaign, our model was successfully generating bespoke, relevant, rounded narratives of evidence. We were able to use this expanding evidence-base to combine our various data-sets in order to demonstrate the holistic nature of our service-wide offers; to evidence customer engagement with them and to highlight our most striking examples of value and impact. Such complex storytelling calls for ever more creative approaches to data-visualization, ‘that allows viewers to discover patterns that might otherwise be hard to uncover.’ (JISC, 2014) It was with this in mind that in 2015 we re-imagined our approach to annual reporting. We were aware that our university executive are receptive to visual data-representation and so informed by our advances in this area, we aimed to remodel our report into a single page data-visualisation.

The result was a design that visually represents our service delivery model. It depicts our strategic priorities at the centre informing and inspiring our key service offers. It then highlights quantitative evidence of engagement with those offers and articulates powerful examples of their value and impact such as customer testimonials, awards and rankings. The circular design highlights the holistic interconnectivity of our service offers in fulfilling our central priorities. It draws upon the metaphor of a pebble dropped in a pool with the rings of influence increasing in size, as service offers lead to engagement and engagement leads to value and impact. This value and impact evidence is purposefully depicted at the widest point of the circle in order to represent its importance as the outcome of all service design and delivery.
This new annual report format has been very well received by university executive and the approach has been expanded to include all converged services across our wider Student Services portfolio. The reports convey the underpinning ethos behind our service delivery model and our core commitment to the articulation of holistic engagement, outcome and impact through innovative data-visualisation.

Conclusions
Our service delivery model is now fully embedded and is driving service culture, design and delivery at Sunderland. The model began as a means to ensure that we had a framework with which to design outcome-focused service offers and to evidence the value and impact of those offers. It provided a blueprint for engaging with our customers on a human level in order to strategically generate the bespoke snapshots of qualitative evidence we require to contextualise the relevance of our services, inspire engagement with them and demonstrate their relevance. Today that model is now fully embedded and is enabling us to successfully articulate and evidence our role, relevance and expertise as contributors to the learning outcomes of the university.

In recent years the outcome-centric, analytics-driven culture of the H.E. sector has gathered pace with alacrity, however, our service model is successfully positioning us to respond to this culture with agility, relevance and impact. The transferable, flexible nature of our model and its synergy with wider institutional priorities ensures its enduring currency and provides opportunity for us to continually adapt in order to successfully define and evidence our ever-changing priorities. Our recent initiative to expand the potential of our model in order to assert our role as library thought-leaders is testament to this.

References


How Assessment Websites of Academic Libraries Convey Information and Show Value

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Introduction
The original purpose of this “lightening paper” was to share the results of an analysis of assessment websites from a sample of academic libraries from four countries, including the United Kingdom, Canada, Australia and the United States, to determine how assessment and related information is conveyed through websites and how this information may help to demonstrate value to constituents. However, during the review, it was discovered that the number of academic libraries in the sample with actual assessment websites was only 55 out of a possible 326, which was low. Therefore, it became necessary to also evaluate each academic library’s main website for assessment and other related information.

In a recent article about “best practices” for assessment committees (Brannen et al, 2016), it was recommended that more investigation be done regarding the impact and use of assessment websites. Recently, a working group was formed at the Florida Atlantic University Libraries to try to identify “best practices” as found on assessment websites of academic libraries. This working group was also charged with recommending assessment websites that report in a user friendly way the results of assessment studies and other related information and to look for common practices or any trends and innovations. As former members of this working group, the endeavour peaked our interest from some of the things we found and discussions we had, and this has inspired us to further investigate a wider sample base and types of academic libraries.

Review of the Literature
Analysis of academic websites
Analysis of websites for libraries have been previously investigated for an array of content, primarily for how these websites show the type of resources and search-ability of an institution (Dewey, 1999), (Agingu, 2000) and for design elements and content (King, 1998) (Tolppanen, Miller & Wooden, 2008). Websites have now more so become the new ‘face of the library’ as it simultaneously demonstrates what the library offers and how resources can be found, particularly for academic libraries to be successful. According to Ryan (2003), a website should be, 1. a reflection of user needs, and a demonstration of 2. the adherence to the university’s website guidelines. Lombard and Hite (2007) investigated the influences of the parental institutional
policies on the construction of the library website and suggested an in-depth analysis of core terminology for library and for administration as it applies to context.

To further acknowledge the importance of websites for academic libraries for the access they allow and content they provide, Hill (2012) revisited Agingu’s study of Historically Black College & Universities (HBCU) academic library websites to find that there had been much improvement from the initial 2000 study. Agingu had found in her comparative study between a sample of HBCUs and peer non-HBCUs that the library websites of HBCUs were lagging in content and resources offerings on their websites, as compared to the peer non-HBCUs. Fast forward twelve years, Hill shows the importance of having a digital presence as “HBCUs have invested time and resources toward improving technology on their campus” (Hill, 2012, 11).

Detlor and Lewis (2006) in their study of ARL academic library websites eschews libraries to build “robust library websites” as portals of collaboration between academic and research libraries and their users. These titles should provide a wide range of disparate information and services that maintains a ‘conversation’ between the library and its users, in addition to potentially encouraging collaboration between the library users themselves. And, although their focus is on making searching options the centrality of websites instead of administrative information, consideration may now want to be given with the rise of accountability and transparency. One such way to show this type of accountability has been the move towards academic libraries demonstrating an external exhibition of their organizational intent to their stakeholders. The provision of mission statements has become a staple and as Kuchi (2006) observed, mission statements and their placement on an academic library’s website can be a gauge for how important a library thinks of informing its constituents of its purpose.

Library assessment
According to a review of the literature on assessment of academic libraries published in 2013 (Hufford, 2013), much of the literature published prior to 2005 about assessment dealt with input (e.g. number of books purchased, etc.) and output (e.g. interlibrary loan requests processed, etc.) assessment. In 2005, the U.S. Department of Education’s Commission on the Future of Higher Education published a report that emphasized the need for more accountability and transparency. This report greatly influenced the regional accreditation organizations to make changes in their standards, which directly impacted academic libraries (Hufford, 2013).

There are various survey instruments and organizations that have also come to focus on assessment for academic libraries over the last two decades. Surveys like LibQUAL+, ClimateQual or organizations like the Association of Research Libraries (ARL) or the Association of College & Research Libraries (ACRL) make it a major part of their mission to measure service quality. The assessment of student learning outcomes in information literacy classes and sessions has also become a very important issue.

Demonstrating value
Communicating the assessment findings is an important and necessary step towards showing value. Although an objective form of analysis is proposed by Albert (2014) of, “a consistent behaviour of communicating the library’s value within the larger institution which will then
change attitudes about the library and its services,” (p 634) certain influences can hamper undertaking assessment as a regulatory type of service. Things like staffing, funding, varying priorities are just a few that could make the best of intentions at supplying value a little difficult. Describing ‘value’ also is based on the interpretation of the institution. But at the heart of assessment is the engagement for academic libraries with students, faculty and the wider institutional community that can and will make use of the facility. Quantitative evidence of this engagement is a strong way to communicate assessment results to stakeholders and “…through transparency and collaboration, librarians can demonstrate library value to all campus stakeholders by determining what matters to each group, and targeting that group with specific notions about how the library can and does help them fulfil their goals, outcomes and mission.” (Albert 2014, 637) Informing constituents of the mission has become an integral part of how academic libraries gauge value. It is a way to “express to internal and external constituencies what the library aspires to achieve in response to the support and expectations” (Kuchi 2006, 149) to its larger parental body.

**Methodology**

A total of 326 academic library websites from four countries were reviewed to determine the types of assessment and related information being displayed on websites. The sample included U.S. libraries from the ARL list. However, in order to have a more representative sample of the academic libraries from the United States, given the USA’s complex historical germination of tertiary institutions, a sample of academic libraries from the lists of the HBCU Library Alliance, along with the American Indian Higher Education Consortium (AIHEC) were also reviewed. In the case of Canada, the UK, and Australia, libraries were included from the lists of the Canadian Association of Research Libraries (CARL), the Research Libraries of the United Kingdom (RLUK), and the Council of Australian University Librarians (CAUL), respectively. The table below includes a list of the associations chosen for the sample from the four countries and the number of academic libraries whose websites were evaluated within each association, along with a brief description about each association.
<table>
<thead>
<tr>
<th>Association Name and Brief Description</th>
<th>Number of Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian Higher Education Consortium (AIHEC)</td>
<td>37</td>
</tr>
<tr>
<td>Formed by the tribal college leaders as a consortium in 1972 to help keep the colleges in the forefront of Washington for funding. The consortium spearheaded the lobbying and receipt of the stable funding through the Tribally Controlled Community College Assistant Act of 1978. Additionally, it provided training for faculty and students at the colleges.</td>
<td></td>
</tr>
<tr>
<td>Historically Black College &amp; Universities (HBCU) Library Alliance</td>
<td>87</td>
</tr>
<tr>
<td>HBCU is a consortium of libraries and their directors that was started in 2001. The organization’s mission is the preservation of HBCU’s tertiary institutions and their libraries and it offers an array of services from professional development to project based initiatives for collecting and conserving the history of these institutions.</td>
<td></td>
</tr>
<tr>
<td>Association of Research Libraries (ARL)</td>
<td>101</td>
</tr>
<tr>
<td>ARL was founded in 1932 and is comprised of research libraries at comprehensive research institutions in the United States and Canada. ARL seeks to play a leadership role in public and information policy for institutions of higher education and to promote a culture of assessment through its library assessment conferences.</td>
<td></td>
</tr>
<tr>
<td>Canadian Association of Research Libraries (CARL)</td>
<td>29</td>
</tr>
<tr>
<td>CARL was established in 1976 and its members are research libraries throughout Canada. CARL is committed to advancing research and higher educations and to enabling broad access to scholarly information. CARL is also committed to assessment and has its own Assessment Committee</td>
<td></td>
</tr>
<tr>
<td>Council of Australian University Librarians (CAUL)</td>
<td>39</td>
</tr>
<tr>
<td>CAUL plays a leadership role in higher education and seeks to enhance the value and capacity of Australian university libraries by influencing scholarship and learning and information policies and practices.</td>
<td></td>
</tr>
<tr>
<td>Research Libraries of the United Kingdom (RLUK)</td>
<td>33</td>
</tr>
<tr>
<td>RLUK is comprised of the leading and most significant research libraries in the UK and Ireland. The RLUK plays a leadership role in shaping the collections and services of research libraries to help promote research excellence and demonstrate the value of research libraries.</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>326</strong></td>
</tr>
</tbody>
</table>

Table 1: Association names, number of academic libraries included in the sample of websites reviewed, and a brief description.

Specific to this analysis we conducted was looking for the presence (or absence) on the home page of specific information that would indicate that assessment was being done. We chose a checklist of nine individual factors/characteristics as markers (performance measures) of the library’s self-awareness of being in some way responsible to their users by providing very
particular information; a type of provision of transparency to show a ‘conversation’ between the library and its stakeholders.

As previously stated, the review was enlarged to include not just assessment websites, but also an academic library’s main website. As a result of an initial review, nine review categories or factors/characteristics as markers (performance measures) were identified that indicated assessment was being done. These nine categories are displayed in the table below, along with a brief definition for each category.

<table>
<thead>
<tr>
<th>Category Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mission Statement</td>
<td>A statement about the library’s purpose or goals.</td>
</tr>
<tr>
<td>2. Vision</td>
<td>A statement about what the library would like to achieve.</td>
</tr>
<tr>
<td>3. Social Media</td>
<td>A library’s websites and applications that enable social networking and encourage the sharing of information (e.g. Facebook, Twitter)</td>
</tr>
<tr>
<td>4. Strategic Plan/Goals</td>
<td>A plan that outlines the Library’s strategic goals.</td>
</tr>
<tr>
<td>5. Facts &amp; Figures</td>
<td>Statistics about the library (e.g. number of volumes) displayed in some format, such as an infographic.</td>
</tr>
<tr>
<td>6. Assessment Website</td>
<td>A website used specifically to display and report the library’s assessment information, such as best practices and results of studies.</td>
</tr>
<tr>
<td>7. Assessment Plan</td>
<td>A plan that outlines the library’s assessment goals, objectives, and best practices.</td>
</tr>
<tr>
<td>8. Assessment Studies/Reports</td>
<td>The results of assessment studies (e.g. LibQUAL).</td>
</tr>
<tr>
<td>9. Comments/Feedback</td>
<td>A request for comments and feedback from users about the library somewhere on the library’s website.</td>
</tr>
</tbody>
</table>

*Table 2: Nine categories selected for the review with their definitions*

In addition to the predetermined nine categories of assessment and related information, any innovations and distinctive ideas contrasting the current assessment culture in how assessment information is being conveyed through websites or how academic libraries are showing value were identified and noted.

**Findings**

Based on the 326 academic libraries that were evaluated, it was determined that the highest number of academic libraries, 231, used social media to display and collect information, followed by the presence of a mission statement at 201, and strategic plans/goals at 168. As previously stated, only 55 of the academic library websites evaluated had an actual assessment website and only 14 had an assessment plan. The results of the website evaluation are reported in the Figure 1 below.
In evaluating the top categories for each of the academic library associations, “Social Media” was found in the top three for all six library associations. Also found in the top three for four library associations was “Mission Statement” and “Strategic Plan/Goals,” with “Comments/Feedback,” “Vision,” and “Assessment Studies/Reports” appearing in the top three for two library associations. The following table gives the complete list of the top three categories for each association.
### Considerations as to “Best Practice”

As King (1998) earlier stated in his study of ARL library website front-end design, it was not meant to offer or show what is being done right, but simply to show what and how it was being done. Similarly, this analysis bears the same sentiment for the current offerings of academic libraries from four countries in the way each institution indicated ‘value’ through assessment. Because of the varying histories and aims of the associations we included in our review, showing value, in part, is part of the historical, economic and social context of the institution(s). A cultural perspective may influence how assessment is conducted and may fall into the view that “there is no one size to fit all.” Although libraries are identified as places for information, they are not exempt from social conditions, economic influences and in general, ‘life happening around them’. These are living institutions and particularly in the case for academic libraries,

### Table 3: Three highest assessment or related categories by association

<table>
<thead>
<tr>
<th>Association</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian Higher Education Consortium (AIHEC)</td>
<td>Mission Statement, Vision, Social Media and Strategic Plan/Goals and Assessment Studies/Reports</td>
</tr>
<tr>
<td>Historically Black College &amp; Universities (HBCU) Library Alliance</td>
<td>Mission Statement, Social Media, Vision</td>
</tr>
<tr>
<td>Association of Research Libraries (ARL)</td>
<td>Social Media, Mission Statement, Strategic Plan/Goals</td>
</tr>
<tr>
<td>Canadian Association of Research Libraries (CARL)</td>
<td>Social Media, Strategic Plan/Goals, Mission Statement</td>
</tr>
<tr>
<td>Council of Australian University Librarians (CAUL)</td>
<td>Social Media and Comments/Feedback, Strategic Plan/Goals, Assessment Studies/Reports</td>
</tr>
<tr>
<td>Research Libraries of the United Kingdom (RLUK)</td>
<td>Social Media, Strategic Plan/Goals, Comments/Feedback</td>
</tr>
</tbody>
</table>
built as the supporting foundations of educational tertiary institutions for a continually growing complexity of users.

**Innovations and Distinctive Ideas**

In the review of the websites, we discovered that “one size does not fit all” and found several innovative ways to let constituents know that we are listening to them and making improvements, and how we can help users succeed in their academic studies, research, and creative endeavours. We also discovered innovative library buildings that make a distinctive statement and demonstrate value and websites that promote ease of navigation and encourage engagement. Here are some examples of innovative and distinctive ways academic libraries are demonstrating value:

- Oxford University Libraries – You said, we did
- University of Saskatchewan University Library People Plan 2017-2021
- UCLA’s strategic plan on video on their website that was also being used as a marketing tool for the university library.
- The Dine College in Arizona environmentally and culturally lovely library building found on their website.
- The ultra-modern Morgan State University’s Earl S. Richardson Library, which “has become a signature building of the campus.”
- Purdue University’s very simple to navigate website

**Limitations**

Only a sample of academic libraries from each of the four countries, including United Kingdom, Canada, Australia and the United States, were analysed for this review of websites. In addition, it appeared that some of the academic libraries were using intranets to display their assessment information, which we were not able to access because they were password protected.

**Conclusions**

*What we learned*

- There are other ways that academic libraries are demonstrating value as evidenced by physical environments: the Dine College’s Shiprock library location, which is a concerted effort to combine heritage and function, and the ultra-modern Morgan State University library building, which “has become a signature building of the campus.”
- Multimedia, such as the UCLA strategic plan on video, can be used to effectively market a library’s resources and services and to show value.
- An option for comments/feedback on a library’s home page is the most direct way of knowing how effective you are at meeting user needs.
- Searching and navigating academic library websites for assessment information can be very difficult. The usability of a majority of the sites for finding assessment information was not as intuitive as expected.
As libraries are required to become more accountable and demonstrate that they are meeting performance metrics for funding and accreditation, a website can be a tool for displaying data for evidence based decision making and to show improvement and for reporting other strategic information. An online presence can also be an important indicator of how a particular academic library views assessment.

Based on the results of the review, it appears that most academic libraries realize the value of ongoing communication with users and the value of conveying assessment information in its various forms. The area of assessment is still evolving and a website can potentially be used as a valuable tool to help demonstrate a library’s value and promote the library as an integral part of the university. Each academic library is unique and needs to decide how best to engage constituents in an ongoing conversation and to demonstrate value.

**Recommendations for Future Research**

As a result of our review, we discovered that there is a potential for promoting a library and its value through how assessment or related information is displayed on a website. Therefore we recommend the following for future research:

- Examine more closely the potential for using websites (assessment or otherwise) to convey assessment information, promote a continuous conversation with our users, demonstrate value to our academic communities and market our resources and services.
- Conduct more research to establish “best practices” for assessment websites and for displaying assessment and related information.

**References**


Immediate influence or future benefit?

The impact of national libraries

Roswitha Poll, Münster

Abstract

The paper describes the actual and potential impact of national libraries: the various forms of influence, the target groups, and methods for assessing such impact.

Introduction

On June 30 2017 the draft of a new ISO standard was sent out for its first official voting procedure: ISO/CD 21248 Quality assessment for national libraries. The standard combines two well-known methods for quality assessment in libraries: performance measurement and impact assessment. It was drawn up by a working group within ISO Technical Committee 46 Information and documentation, Subcommittee 8 Quality - Statistics and performance evaluation.

But why such a new standard exclusively intended for national libraries?

The same ISO committee had quite recently published several standards for library assessment: ISO 11620, the standard for library performance measures, appeared 2013 already in its 3rd edition, and in the same year ISO 16439 “Methods and procedures for assessing the impact of libraries” described for the first time how to evaluate library impact.

In addition, two so-called “Technical Reports” had been published that especially considered issues of national libraries: ISO/TR 28118 (2009) “Performance indicators for national libraries” intended to cover the functions of national libraries more comprehensively than ISO 11620 could do. ISO/TR 14873 “Statistics and quality issues for web archiving”, published 2013, shows data and quality indicators for this huge new task of national libraries.

However, national libraries wished for more, as the general standards cannot sufficiently cover their specific needs. In 2015, the ISO working group considered revising the Technical Report 28118. The question was sent to the list of CDNL (Conference of Directors of National Libraries) whether to revise the old report or to add methods for impact of national libraries and to draft a real standard. The decision was unanimous for the combined standard. The voting within ISO for the new project was positive with 11 countries deciding to cooperate actively. Work started in June 2016 and after only one year the “Committee draft” was ready for voting.

Uniqueness of national libraries

Every library will of course insist that is unique, especially if it is in danger of being compared with others. National libraries differ from other library types by their specific role and functions: They collect, preserve and promote the national documentary heritage and thus become symbols of the national culture.

However, they show such broad variety that it is difficult to find common methods for quality assessment. As Maurice Line stated, “no type of library varies so much in nature, size, types of media covered, range of acquisitions, functions and services” [1].
National libraries are bound to develop differently, as they are “subject to political agendas which change, often more rapidly than for public or academic libraries” [2]. In most cases, the national library is unique in the country, but it may have several functions and be at the same time a university or public library, a parliamentary library or a national archive.

The fundamental task of a national library is the collection of the national imprint, i.e. all documents in all formats that are published in a country. But even this task that seems to be similar for all national libraries shows wide differences that are induced by legal regulations and the economic and cultural structure in the country. There may be other institutions taking part in the collection of the national cultural heritage. The documents can be collected via legal deposit or voluntary delivery; the collecting activity can be comprehensive or selective, and as to the collection of digital material or even web archiving, the picture is indeed varicoloured.

Another significant difference in national libraries is caused by their rare collections. Especially national libraries that exist since centuries possess large collections of rare materials from their own and other countries, including manuscripts and incunabula. Such collections will attract researchers and will considerably influence the library’s users and usage.

Depending on the national library system, national libraries will play a more or less important role as centre of development and as support and supplier of other libraries.

National libraries show great differences, but, to cite Maurice Line again, they are “in fact rather like dogs: dogs also exhibit an enormous variety, but we somehow recognize them all as dogs”[1]. So, the ISO group relied on that basic canine feature when trying to identify the main functions of national libraries.

**Functions of national libraries**

Comparison of the Technical Report 28118 (2009) with the draft of the new standard 21248 (2017) proves that eight years have brought visible changes in the functions of national libraries, shifting from a largely collection-oriented to a more user-oriented policy.

The mission statement has stayed nearly the same:

“National libraries have special responsibilities, often defined in law, for a country's cultural heritage. They collect and preserve the national documentary heritage and provide and ensure permanent access to the knowledge and culture of the past and present. They take a leading role in the library and information sector, often developing central services within that area.”

But the tasks named as core and additional functions in the new standard distinctly show a higher accentuation of usage, more emphasis on digital resources and services, and a stress on the educational role of the library. The new trends comprise:

- **User aspect**
  - services for persons with special needs
  - representation of the cultural diversity of the country
  - opening up of the library’s metadata for reuse

- **Digital collection and services**
  - the Internet resources of the national domain collected as part of the cultural heritage
  - development of digital preservation policies

- **Educational services**
  - support for learning and education by learning sessions, learning materials and programs for children and adults
  - promotion of literacy and digital literacy
Another function that the new standard stresses is not new, but becomes ever more relevant today: research on the library’s collections. National library staff often carries out scholarly work, especially if the library houses rare and special material. But primarily the libraries initiate and support research projects on collection objects and present the results to the public. 

When the ISO working group started with the new standard, their first task was to reformulate the functions of national libraries. The listing was compared to the results of the survey that the IFLA National Libraries Section initiated in 2015/16 [3]. The second task was to revise the performance indicators of ISO/TR 28118, delete some and to find additional ones for the new functions. The third step then was to identify what can considered as impact of national libraries and how such impact could be assessed.

**Performance measurement in national libraries**

ISO/TR 28118 described 30 performance indicators that were either taken from ISO 11620 and adapted to national libraries or selected from indicators that national libraries had already tested. [4] Of these, only two were now deleted as no longer relevant, but six new ones were adopted for the new standard, especially for the recently expanding services:

- Number of research publications per professional staff member
- Percentage of accesses to the online catalogue via mobile devices
- Willingness-to-return
- Percentage of staff time spent in training
- Percentage of staff time spent on delivering educational sessions
- Number of documents in the media per event

Just as in ISO/TR 28118, the indicators are grouped according to the functions of national libraries; a listing following the Balanced Scorecard is added in an annex of the standard.

ISO 11620, the basic standard for library performance measures, supplies for each performance indicator the source where it was originally described. ISO/TR 28118 differed from this in supplying not only the original source of an indicator, but “examples and further reading”. The idea was on the one side to show that application of the indicators is feasible, on the other side to present results that would help the libraries to rank and appraise their own data. This special feature, after some discussion in the working group, was maintained for the new standard. Group members tested most of the indicators in their libraries, so that even comparison of indicator results is now in several cases possible.

**Impact of national libraries**

ISO 16439, the standard for impact assessment in libraries, defines “impact” as “difference or change in an individual or group resulting from the contact with library services”. Such change can be tangible or intangible, direct (immediate) or long-term, small or far-reaching, actual or potential. Impact of national libraries can be roughly divided into the following areas:

- impact on individuals,
- impact on the library and information network,
- cultural and social impact.

Impact of public, academic, special or school libraries will usually rather concern individuals than institutions or society in general. They serve generally a defined population, e.g. members of a university, a town quarter, or a commercial firm.
National libraries have no defined population. They serve not only the inhabitants of their country, but interested persons worldwide. But it is possible to identify specific groups that are the most frequent and important users of national libraries. These target groups are [5]:

1. **researchers**: all persons doing research for academic, commercial or personal reasons, including genealogists
2. **educators and learners**: from schoolchildren to teachers and lifelong learners
3. **visitors at events**: This includes many one-time visitors of exhibitions, lectures etc., also persons coming to see the library building or special show rooms.
4. **publishers**: Publishers have to cooperate with the national library because of legal deposit or copyright issues.
5. **libraries**: Libraries and other information services profit from the national library’s collections, metadata for the national imprint, reference and lending services and central services such as the national digital library or a centre for library education.
6. **public administration**: Many national libraries provide services to the legislative, executive and judicial branches of government; some even combine the functions of national and parliamentary library.
7. **the general public/society**: all members of the public, inside and outside the country
8. **business**: Some national libraries have built up services for commercial ventures.

The list shows that the influence of national libraries is less directed to individuals than to institutions or society in general.

**Impact on individual users**

**Researchers**

Probably most persons who attend the national library physically or virtually can be considered as researchers, either doing scholarly work in the narrower sense on the library’s collections, or seeking information for their professional or personal concerns.

The main advantage for researchers is the reliance on the (hopefully) comprehensive national collection and on the library staff’s knowledge about that collection. They can save time and effort by directly addressing the national library with their questions. For scholarly work, the special collections of the library, whether of national or foreign origin can be a treasure and can instigate new research projects. Researchers can often find material and information that they might not find anywhere else.

Working in the library and on the library’s collections, researchers have many options for contact and communication with other researchers with the same topic. To summarize the impact of their contacts with the national library and its collections, researchers will probably reach higher success in their work and with less effort.

**Educators and learners**

National libraries provide learning sessions, learning materials and educational programs for children and adults, usually in digital form. These educational services are generally based on the library’s collections. All persons engaged in teaching and/or learning, from schoolchildren to teachers and lifelong learners, can benefit from such services.

The advantage for learners is above all a better understanding of the national history and culture and maybe higher success in their studies. Teachers using the library’s programs can save time and effort and can be supported in effective teaching.
Visitors of events or of the library building

Individuals or groups attending library events (e.g. concerts, lectures, discussions) or exhibitions in the library, or that visit the library because of its architecture, can benefit from their visit in various ways. If it is only a one-time visit, that will probably not lead to lasting changes. But the visitors can experience personal enjoyment, can learn something, or get new ideas.

Impact on institutions

Publishers

Publishers are more or less obliged to deliver their publications free of charge to the national library; they will therefore probably see the library as the party that profits from the legal deposit regulations. But publishing houses can benefit in various ways from their interactions with the national library. They can rely on the national imprint being collected, catalogued and preserved; the main advantages are:

- The publishing house saves costs for cataloguing, storage and conservation of its output.
- The national library’s metadata guarantee qualitative records.
- The national bibliography promotes the publications and makes them searchable.

Libraries

The national library influences the library world in its country in various ways. The most important factor is of course the collecting, cataloguing and preserving of the national imprint. Libraries can rely on this function and on the national library serving as “last resort” for documents. They can save staff time, space and costs and can be supplied with qualitative and consistent cataloguing records. In addition, the national library often plays a leading role in the national library world and beyond. It manages or co-manages central services, such as a national digitisation centre, a centre for library education, or a centre for international standard numbers. It joins in the development of new techniques and methods, especially for the cataloguing and preservation of the national imprint. And finally, the national library promotes cooperation of libraries and information services. The other libraries can profit from these services and developments.

Public administration

National libraries often offer services for governmental institutions, for instance giving information based on the national collection or supplying documents from its collections by lending, copying and digitising services.

The institutions profit from the collections and the library’s expertise by getting quick and correct answers to questions, saving time and effort and gaining increased knowledge about national policy issues.

Business

Several national libraries offer services for commercial enterprises, especially for small and medium-sized enterprises that lack expertise for getting necessary information. The library can help in the starting up phase by market research and competitor analysis, drawing up of business plans and finding possible sources of finance. It can give information on legal aspects and taxes and can give support in digital marketing and use of social media for the business.

These activities can influence the local, regional or national economy.
Impact on society
The existence of a national library can influence the cultural, political and social life in the country. The impact will be less visible than the influence of a public or academic library on its population or surroundings, but instead it is long-lasting, affecting the future.
The benefits that society derives from a national library can be seen like this:
- By collecting and preserving the national documentary heritage, national libraries guarantee that future generations will also have permanent access.
- By giving general access to their national collections, national libraries support equal access to information.
- By their educational services, based on the national collections, national libraries support learning and education.
- National libraries further the national identity; they have been referred to as symbols for the national culture, which notion is often expressed by the style of their grand buildings.

Methods for assessing the impact of national libraries
What methods should be chosen for identifying an impact of the national library depends of course very much on the individuals, groups or institutions that have used the library’s collections and services.
ISO 16439, the standard for impact assessment in libraries, adopted a differentiation introduced by Streatfield [6] and distinguishes three groups of methods:
1. Impact can be inferred from data such as statistics of users and usage, scores of library performance indicators or user satisfaction levels. Such data do not really prove an impact, but they allow assuming that there has been an influence on the users.
2. Impact can be observed (through observation of users, self-recording of users, or tests).
3. Impact can be solicited (through questionnaires, interviews, focus groups, or other methods for requesting information or the respondent’s opinion).

Inferred impact
Inferring library impact from statistics, performance indicators or satisfaction levels can be useful for many of the above-mentioned target groups.
Statistics can show, whether the library’s services have proved relevant for the users, both individual and institutional. If more libraries subscribe to the national library’s metadata, if more members of governmental institutions are using the library’s reference service, or a higher number of librarians attend the training sessions of the national library, it can be assumed that they benefitted from those services.
Some performance indicators can be interpreted in the same way. High occupancy rates of user places in the library show that visitors appreciate the working conditions; high “willingness-to return” to the reference service or the business support centre of the library indicates that the information gained was valued.
The same applies to the results of user satisfaction surveys. If attendants of library events show highly satisfied after the event, it may be supposed that they learnt something and/or enjoyed themselves. If libraries express high satisfaction with the speed or accuracy of the national library’s metadata services, this indicates that they saved time and effort in their work.
But inferred impact is only a hypothesis; the assumption should always be validated by other methods.

**Observed impact**

Observational methods will be less effective in national libraries than for instance in academic libraries. There is no homogeneous user group that allows comparison in itself, and users change generally rather too quickly for long-time observation. Self-recording of users by keeping a diary might be effective, if researchers working in the library for a longer time period can be persuaded to take the trouble. They should record the resources or services they use and whether and how they were influenced by that usage. In order to identify the benefit of the national library’s collections for research, bibliometric analysis of new publications has been used, identifying all publications in which the authors cite the use of the collections or services of a specified national library [7]. Tests might be used when assessing the effect of attendance at the library’s educational services.

**Solicited impact**

The simplest way to assess the impact of national libraries is to ask the users, both individual and institutional. This can be done in different ways: written questioning (surveys) and oral questioning (interviews, discussion groups, focus groups). Users – and sometimes also non-users – are asked for their experience and estimation of library benefits. It is useful to add questions about the frequency and type of library use. If individuals are surveyed, questions about age, gender, status, or research topic can help to evaluate the answers to the impact questions. Researchers can be asked how they profited from using the national library, e.g. by new ideas for their projects, essential new information, time and effort saved, or contacts with other researchers. Teachers and educators may have acquired additional information and teaching skills by using the library’s educational services. One-time visitors of exhibitions and other library events will of course be asked whether they enjoyed themselves – in addition to perhaps learning something. For institutional users (libraries, publishers, and governmental institutions) the questions will focus on time, effort, and costs saved, higher quality of their own products and especially the advantage of relying on the collection and long-term availability of the national documentary heritage. The surveys mentioned above are addressed to actual users of the library. In most cases it will be effective to ask not only for possible advantages and benefits by the library contacts, but at the same time for the users’ satisfaction with the library’s services. Surveys can also try to assess the general public’s awareness and perceptions of the national library, of its functions, collections and services and its influence on the cultural life in the country. Such surveys question a sample of the population in the country, including actual users and non-users of the library. The interviewed persons are asked whether they have heard of the national library, what they think it does, whom it serves, and what they deem its value. Such interviewing can for instance be done in a “street survey”. The awareness rates are probably low, if a striking new building or a spectacular acquisition has not of late attracted attention to the library.

**Conclusion**

Even if national libraries had no other task than the collection of the national documentary heritage, they would have a considerable influence on the national culture. This task is assigned more or less to all national libraries. The additional function of playing a leading role in the national library world
and acting as centre for joint services and for development varies much more over countries, as it depends on the national educational and informational policies, on the number, type and structure of other libraries in the country, and on funding possibilities.

For a long time, national libraries seemed to need no justification for existing and needing resources. Closing down a national library? Cutting down a national symbol? National libraries could be seen as “sacred cows” - to be worshipped but not slaughtered”, as Maurice Line wrote [8].

Somewhat later perhaps than public or academic libraries, the national libraries perceived that their status and funding might be endangered. They started to seek methods for proving their effectiveness and efficiency and, still better, their value for the cultural and social life of the country.

It is not easy for national libraries to prove their impact. Their benefits are not conspicuous, not so visible for the looker-on, and will partly only be recognizable after years. But considering the new functions that have been adopted and applying new methods of assessment such as those described in ISO/CD 21248, it should be possible to show an immediate influence of national libraries as well as the future benefits.


Implementing a model for service development

Collaboration and empowerment

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Purpose
This lightening paper describes a work in progress. Lund University is a comprehensive university with eight faculties. Each faculty has a library organisation, and the faculty libraries form together with the centrally financed University Library a decentralized network, with around 200 staff members.

The library network is directed by a management group, consisting of the faculty librarians and the library director. The management agrees on a yearly plan for joint activities and projects. According to the quality policy taken in 2014, a separate activity plan for quality assessment has also been agreed on every year.

The library network is strongly engaged in developing the services for students and researchers and throughout the years many projects, both large and small and many of them successful, have been carried out. However, it is felt that the service development is not systematic enough; documentation is not always consistent and can be difficult to find, and the outcomes of projects and activities are not always evaluated. In consequence, the organisation does not benefit as much as it could; the risk is that we reinvent the wheel instead of progressing thanks to knowledge gained.

In Autumn 2016 a small group was commissioned to write a new quality policy. Considering the problems described above we decided not to write a general policy; instead the new quality policy consists of a model for service development, designed to be used practically, and a short text explaining how to use the model. The purpose is to achieve a more systematic service development and to facilitate the development process. Another important factor is that the quality assessment will be integrated in the library network activity plan.

The library network management approved of the policy, and in December 2016 it was adopted by the Library Board, the formal head of the Lund University Library network.

The model for organisational development
The qualitative policy applies as from the 1st January 2017, and should now be implemented. The implementation will be a process during 2017, and we view this process as a learning experience and evaluation of the model.

The model for systematic organisational development is conceived to be used in all organisational development; to develop new positions and activities as well as to develop ongoing operations. It is generic in the sense that it can be applied at all levels and in all contexts connected to organisational development within the Lund University Library network. It is linked to activities in the organisation’s policy documents (e.g. operational plan, strategic plan, project plans, etc.) or to other change work which entails the integration of quality enhancement in all organisational development. It should be a tool also for planning, increasing efficiency and prioritising.

The model entails a more evidence-based approach, which leads to a better and more realistic use of resources. It entails the libraries being able to deliver documentation for analysis, discussion and decision to their principals to a higher degree than previously, enabling comparisons over time.
The model describes a cyclic process of five phases. The phase Current status consists of an analysis of the current situation based on evidence, in order to identify a need for change. The analysis could include performance measurements, but also reviews of current research and best practices. The phase Planning is where prioritising and decisions on development initiatives should be made from a management perspective. In this phase, the organisation can work with visions, goals and scenarios, but also considerate needs for skills, resources and time.

The phase Development work is quite self-explanatory. Here changes for improvement, operational plans and/or wider society are developed. This phase may require support in the form of professional development, communication, etc.

The Implementation phase consists of implementation of the outcome of the development work, in the form of e.g. pilot projects or deployment.

The phase Evaluation includes follow-up of development work and evaluation of the new current status to produce new evidence using the toolbox. Were goals achieved, were work processes affected, was the user’s experience affected? A very important element in this phase is the documentation and communication of the development work and results.

**The toolbox**

The central part of the model is a toolbox ([http://libguides.lub.lu.se/verksamhetsutveckling/toolbox](http://libguides.lub.lu.se/verksamhetsutveckling/toolbox)), with methods and other tools to be used in the different phases of the model. The toolbox is essential for the systematic development work, providing support and guidance. It is digital, and we have decided to make it as a LibGuide, since we have good knowledge and experience of using LibGuides throughout the organisation. The emphasis is on methods and processes which have been used in the library organisation, for two reasons. Firstly, by relying on local practice and experience we hope to lower the threshold to try new methods and tools, it may seem easier to phone a colleague to get advice than to rely on literature.

Secondly, we aim to gather knowledge and documentation about the various projects that have been done within the organisation, this information is currently quite difficult to find.
The methods, processes and tools are categorised in the following categories: Analysis of current status, Ideation and prioritisation, Planning and selection of methods, Business intelligence, Qualitative methods, User experience (UX), Usability testing, Quantitative methods, Statistics, Professional development, Communication.

Each tool is briefly described, with links to further reading/material, and information about colleagues having used it and in which context, together with documentation.

**Approach**

It has been decided that the model will be used when implementing the joint activity plan for the library network 2017, with several activities ranging from planning for a new library system and evaluating the discovery system to setting up a staff training program for the next three years.

We believe that the model and the toolbox can facilitate and support the processes related to activity plans and development projects, and thus making the project processes more systematic, solid and valid. You should be able to use the model when evaluating the current situation; when planning the different phases in a project; when doing the development work and the implementation; when evaluating the outcomes.

Swedish academic libraries do not have a tradition of large assessment departments. At Lund University Libraries, there is one assessment librarian, who collaborates with different working groups to support and facilitate different aspects of organisational development, for instance the management group, the communication group, the professional training group and a small group formed to promote the implementation of the model. We have small resources to support the management and the staff who are going to accomplish the activities. The role of the assessment librarian and the implementation group will be to provide the necessary scaffolding, to promote the model, initiate training and take part in pilot projects. Some of the activities in process are the creation of a pool of test participants, in order to facilitate different types of user studies; a pilot usability in which we test the discovery system and invite all the library’s system owners to observe the tests, hoping...
they will serve as inspiration; planning of a series of workshops about different UX methods. During Autumn, we will also arrange workshops about the model for systematic organisational development and the toolbox. The assessment librarian will introduce new project and work groups to the model and the tools, and also take active part in the planning and formulating of the activity plan for 2018.

We will live as we learn, in a “project about the projects” we test and evaluate the model and its components during 2017. In March, we gathered the staff responsible for the different activities in the activity plan to do a workshop. In June, we held a second workshop, with the management group at the University library (the largest library unit with 100 staff members and responsible for the coordination of systems, digital collections, scientific communication and cultural heritage. These workshops were both occasions for the participants to begin the planning of activities, to discuss and express the need of further support and training and also to give feedback and reflections about the actual model. With this information, we are making a program for 2017, with seminars, workshops and other activities. We will use agile methods to continuously evaluate during Autumn 2017, and adjust the toolbox and supporting activities according to findings. In Spring 2018, we will make a larger evaluation. The results will give us evidence to adjust and improve the model and the toolbox.

An important part of gathering evidence about best practice for systematic organisational development is to share experiences and knowledge with other organisations. As a part of small benchmarking project together with Malmö University Library we arranged a “project meet” in April, where participants gave lightening papers about projects and methods. In May, we arranged a workshop about systematic service development at a national Library and Information Science conference, and we participated in a workshop for different types of libraries in Southern Sweden.

Findings

This being a work in progress the reflections and observations made at the workshops previously mentioned have to be further investigated in the evaluation process of the model.

It seems that the model can be used to ensure that all phases in a development activity are included. We already have evidence that the evaluation phase is often excluded, probably most often due to shortage of time and resources. It seems that the organisation is not putting enough effort on the planning phase, and that the parts involved sometimes lack a common understanding of plans and decisions. As a consequence, a project group may need go back to the management to get each step approved, which make the process slow and frustrating. Another risk is that the outcome of a development activity is not what was intended.

Another reflection is that the model probably can be used to break down large (and somewhat fluffy) project plans into smaller and more concrete and delimited projects. Thus, the model can be a tool used when planning and formulating activity plans.

The model for systematic organisational development and its toolbox can support and develop knowledge sharing within the Lund university library network and the development of the model is a common responsibility.

Expectations

We are in the beginning of the process to implement and evaluate the model. So far, the model and the concept of a systematic, cyclic and continuous process to change and improve the library services has been well received, by the Library board, the management and other colleagues. It will be used when implementing the joint activity plan for the library network. We consider this as an evaluation and learning process, that will lead to improvements in the model and the toolbox. It is our expectation that the model will also be used in other contexts, such as projects and activities initiated by individual faculty libraries or the University Library.

The value of the proposal is that it describes a practical effort to change and improve service development within an organisation.
Introduction
While a variety of quantitative and qualitative methods, such as surveys, interviews, and ethnographic observation, have been used to measure library performance for some time, new technologies have emerged that are expanding the range of data that can be collected about library users’ experiences. One such technology is eye tracking. Eye tracking devices use infrared sensors and high speed cameras to track and capture a users’ eye movements across a target object, for example a computer screen or mobile device. While earlier eye tracking technology was quite cumbersome and usually required the participant’s head to be restrained, recent developments have resulted in a range of robust yet lightweight eye tracking devices that can be used in a wider range of settings inside or outside of a lab. This has greatly expanded the range of possible research uses for eye tracking, including for measuring library performance. A recent literature review found that while the use of eye tracking methods in the broader field of library and information science has increased over the last ten years, it is still relatively rare, particularly in applied research within libraries (Lund, 2016).

This short paper will discuss how screen-based eye tracking technologies can be used to gain deeper insights about user experience and user behavior in an academic library. I will combine findings from the literature with examples drawn from multiple eye tracking studies conducted at a large academic research library in the United States. I will outline the benefits of eye tracking as an innovative method, with an emphasis on the practical uses for measuring different aspects of library performance. I will conclude by discussing some of the challenges for implementing eye tracking in libraries.

Why Use Eye Tracking
The principal concept underlying most eye tracking research is the "eye-mind hypothesis" (Just and Carpenter, 1976), which holds that the movement of the eye provides a proxy for cognitive processes. More specifically, the points when eyes are fixated, or relatively static, are correlated with attention. Therefore, by tracking a users’ gaze across a target, such as a website, researchers can pinpoint those areas that attracted attention, and conversely, those which did not. Advances in technology also enable researchers to track gaze across a static target, such as a web page or supermarket shelf, or dynamically in the environment through wearable eye trackers. While some eye tracking systems require participants to wear electrodes or keep their heads in a mount, the most common types of eye trackers used in human-computer interaction (HCI) and user experience research are what are known as "remote" or video-based eye trackers (Navalpakkam and Churchill, 2014). These eye trackers use a combination of high-speed cameras and infrared sensors to detect the location of participants’ gaze across the target, and may be installed within a computer monitor or designed as separate attachments.

Eye tracking methods have been adopted with increasing frequency in fields such as HCI, in order to answer questions about how people interact with desktop and hand-held devices (Navalpakkam and Churchill, 2014). I refer to these types of studies broadly as screen-based eye tracking, to distinguish them from wearable eye tracking. Screen-based eye tracking can serve as a powerful complement to traditional usability studies, as it can reveal additional unconscious user behaviors. For example, a traditional think-aloud website usability test with task logging can show how long it took users to complete a certain task, and users may be able to articulate in their narratives some reasons for their behaviors. The addition of eye tracking can reveal more subtle details, for instance if the page contained elements that distracted users' attention from the intended target on the page. Another growing area of research within the general topic of web search and information
seeking is correlating mouse movements with eye movements, which can illuminate when mouse movements are, and are
not, representative of user attention (Navalpakkam and Churchill, 2014).

**Eye Tracking in Library and Information Science Research**

A comprehensive literature review of eye tracking research in the field of library and information science (LIS) between
2005 and 2015 (Lund, 2016) found 59 papers reporting experimental research with eye tracking as the primary method. Of
these papers, Lund found that the most common use for eye tracking methods was as part of usability testing of websites or
other digital interfaces. For example, Kules and Capra (2012) were interested in whether training videos or contextual help
links would be effective in helping students make better use of facets in a library catalog search. They combined eye
tracking with a method called Retrospective Think-Aloud (RTA) to determine which parts of the search interface attracted
users’ attention over the course of six different search tasks. RTA is similar to traditional think-aloud methods of usability
testing, except that the participant’s narrative occurs during a replay of the eye tracking video. They found that while overall
participants looked at the search results more than any other part of the interface, users who saw the training video looked at
the facets section of the interface more than users who did not see the video. They also found that none of the participants
noticed or used the contextual help link, which was confirmed through both the eye tracking results and an analysis of the
server logs. Another library usability study used eye tracking as part of an examination of interlibrary loan options in a
consortial OPAC (Jones et al., 2014). In this case, eye tracking findings revealed how users read the results list, scanning the
titles of records and generally ignoring thumbnails of book covers and subject headings.

**Eye Tracking at Harvard Library**

The research discussed above illustrates two examples of the kinds of previously hidden data that eye tracking methods can
uncover for libraries. In addition to studying search interfaces, screen based eye tracking can be used to study library
tutorials, websites, and mobile apps and interfaces. One of our earliest uses of eye tracking at Harvard Library was during
our migration to version two of the LibGuides CMS in 2015. There were a lot of questions from library staff about the
effectiveness of our LibGuides, particularly with regard to the overall design and layout of guides. Given that the new
version of the platform offered better design options, we first conducted a task-based, think-aloud usability study on five
guides representing different disciplines and design approaches from across Harvard. The results of that test showed that our
guides were cluttered, overwhelmed users with too much content, and were difficult to navigate efficiently and effectively.
As a result, a number of design changes were recommended for the move to version two, including a recommendation for a
new template with a left side navigation menu. However, there were many staff who were used to the traditional top
navigation menu on LibGuides and were skeptical of the recommendation for the left menu. In order to validate our design
recommendation, we created two versions of the same guide, one with the tabs at the top and the other with a left menu, and
then conducted an eye tracking test with two tasks, with the goal of determining which menu location would be more
effective. The results of the eye tracking test showed us that users’ gaze was much more concentrated on the navigation
menu in the left navigation option versus the top tabbed option (see Figures 1 and 2), and that users found the left navigation
significantly faster than the top navigation (see Markman, 2016). The evidence from the eye tracking was compelling and
persuasive, and resulted in an even stronger recommendation that all guides move to using the new left navigation template.
Without the eye tracking technology, it would likely have been difficult to convince staff that the tabbed layout was indeed
much more difficult to use.
At Harvard Library we are also experimenting with using screen-based eye tracking as part of the iterative design process for a series of library tutorials that we are developing (Markman et al., 2017). For example, for the first tutorial we launched, we conducted a study to compare a text-only version of the content with an animated and static web infographic version. We tracked the participants’ gaze as they went through the tutorial, in order to see if their attention to different sections of the content related to their scores on a post-test questionnaire. Interestingly, while we have not found any significant relationships between gaze patterns and test scores, the eye tracking results illustrate which sections of the content attracted more attention. Through the use of eye tracking we are also able to better understand how participants interact with the text and the images on the tutorial, which is informing our design decisions on subsequent tutorials (see Figure 3).
For the study noted above, we employed eye tracking after the design was finished, in order to better understand how participants engaged with the format of the tutorial (a one-page scrolling web infographic). Because we were interested in conducting quantitative analyses across three study conditions, we needed a large sample size ($N = 105$). However, eye tracking can also be used for qualitative research during the design process. We are currently working on a new tutorial on academic writing, aimed at graduate students at Harvard's professional schools. As part of this tutorial, we are investigating an interactive visualization that would be embedded in the introductory portion of the tutorial (see Figure 4). During the prototype phase of design, we are using eye tracking to learn more about how potential learners interact with this visualization, and to uncover any design issues that would need to be addressed before we make a final decision on the use of this visualization. Since our goal here is for qualitative insights, we are following typical usability guidelines and only testing with a small number of users in this phase. We will conduct follow-up eye tracking tests as we refine the design.

Figure 3. Screen shot from one participant's gaze plot. The circles represent where the participant's gaze was fixated, and the numbers show the order of the fixations in this section of the video.

Figure 4. Heat map from a segment of one participant's viewing of the prototype interactive visualization.
Challenges for Implementing Eye Tracking as an Innovative Method in Libraries

Eye tracking technology is a powerful tool for uncovering hidden aspects of library user behavior. However, it is not without its challenges. The biggest hurdle to implementing eye tracking in the academic library is the cost. A complete system including hardware and analysis software can easily run into the tens of thousands of dollars. Although there are a number of vendors of eye tracking technology, two companies dominate the market: Tobii Pro and SensoMotoric Instruments (SMI). Lund's (2016) literature review found that Tobii eye trackers were used in 44% of the studies, with SMI being the second most used at 12%. The dominance of these two vendors adds to the challenge of finding a lower-cost solution. Eye tracking systems that use webcams hold the promise of a more budget-friendly solution, and research shows that while they still may not be as accurate as commercial systems from Tobii and SMI, they may be good enough for usability research (Burton et al., 2014, Skovsgaard et al., 2011).

In addition to exploring lower-cost webcam solutions, another avenue for academic libraries to overcome the cost challenge is to seek out institutional or other organizational partnerships. Our experience at Harvard Library has been that eye tracking is an occasional, rather than a frequent method for our user experience research. As such, academic libraries could begin to incorporate eye tracking by seeking out partnerships with researchers on campus who are already using the technology. Given its prominence in fields such as HCI, cognitive psychology, vision science, and other related disciplines, it is likely that eye tracking is already in use at medium to large research institutions. In particular, libraries at institutions with HCI or LIS programs may find that there are fruitful research partnerships to be developed by using eye tracking to study the library's search interfaces. Another route is to seek out partnerships with other cultural institutions on campus, such as museums, or with departments like IT or communications, to jointly purchase an eye tracking system. The eye tracker can then be used to inform a wide range of design and UX decisions, including ones for the library. Similarly, academic libraries that are part of a consortium might explore a joint purchase for the use of multiple libraries.

In addition to the cost, the other major challenge in deploying screen-based eye tracking in the academic library is in the nature of the technology itself. The accuracy of eye tracking results depends on calibrating the eye tracker to each participant's eyes. Unfortunately, for a variety of reasons, not every participant will calibrate at a satisfactory level, which generally results in needing to recruit more participants than might be needed in a typical usability study, because some of the data collected will not be usable. Eye tracking calibration also adds time to the study, and the use of RTA will also add time. Finally, while qualitative analyses can be performed on data from a small number of participants, eye tracking requires a larger number of participants in order to generate reliable quantitative metrics and visualizations. For example, in our LibGuides navigation test at Harvard Library, we had a total of 37 participants in the study, of whom 29 had valid, usable eye tracking data. A typical usability study might have half the number of participants.

Eye tracking is a new technology that allows for innovative data collection in multiple library settings. By combining eye tracking with other research methods, such as usability studies, log analysis, or interviews, libraries have the potential to dramatically increase their understanding of a range of user behaviors across their digital interfaces. Eye tracking technologies provide deeper insights into previously hidden user behavior, and can illuminate alignments or conflicts with expressed user preferences.

References


Insights from Jisc & HESA Analytics Labs

An Agile, cross-institutional approach

Baylis, L. and Burke, S.

Abstract

Purpose
The purpose of this session is to provide an overview of the Jisc and HESA Library Data Labs project and its outputs. Library Data Labs ran as a special instance of the three-month Jisc and HESA Analytics Labs phases, which bring together cross-institutional teams to develop proof-of-concept data-visualised dashboards. Analytics Labs normally draws from University strategic planning departments, but Library Data Labs set out to discover whether the process could be successfully replicated for a library audience, using library data to make library-specific insights, and develop dashboards suitable for delivery via HESA’s HEIDI Plus service.

Design, methodology or approach
The session will take the form of a presentation explaining the Library Data Labs project and its outputs.

Findings
The session will present the outputs from five cross-institutional library teams, and one Jisc team. An overview will be given of the ‘User Story’ approach whereby teams defined the questions to be addressed by the dashboards, and the user stories which teams defined will be described. A selection of dashboards will be presented and the next steps for the project explained.

Conclusions
The continued success of the approach developed through the Labs projects is borne out by the feedback received from participants, the continued interest from an increasing range of applicants for future development cycles, and the growing interest in gaining access to the prototype dashboards already produced.

Originality and value of proposal
The session offers insight into the Library Data Labs project including a summary of all the user stories developed by participants. The value of the session will be in learning about the latest library analytics developments happening in the UK, as well as learning how institutions will be able to access some of the dashboard outputs of the process.

Keywords
Analytics, Business intelligence, Collections, Data, Impact, Innovative methods, Learning, Space, Usage, Visualisations
Background
The Library Data Labs project (Burke, 2016) resulted from two distinct programmes of Jisc (Jisc, 2017) activity with a view to expand and enhance the sector's library analytics. Library Data Labs offered the opportunity to investigate new insights by combining library data with other data sets available for the first time.

The first of these two programmes was Analytics Labs (Jisc, 2017b), a Jisc Business Intelligence project. In 2015, Jisc partnered with the Higher Education Statistics Agency (HESA, 2017) who were replacing their HEIDI platform offering the HESA returns data (HESA, 2016) for member consumption. The new platform, HEIDI Plus (HESA, 2017a), was based on the Tableau visualisation software (Tableau, 2017) offering more user friendly, interactive data delivery. Analytics Labs aimed to enrich the HEIDI Plus offering by developing additional data dashboards to complement those in HEIDI Plus. Over its initial two phases of dashboard development, the project brought together 70 expert practitioners from 60 university strategic planning departments. Participants formed into teams and identified problem areas, then combined the data available to them via HESA and other sources to develop interactive dashboards using Tableau. The idea was untested but the results were consistently positive, with a number of dashboard outputs made available on the HEIDI Plus service with further dashboards to follow on an agreed release schedule.

The second programme was Jisc’s evolving Analytics programme, now Learning Analytics (Jisc, 2017a). Jisc has been involved with, and funded studies into, library analytics since the first Library and Impact Data Project (LIDP) at the University of Huddersfield in 2011 (Stone and Ramsden, 2013). The results of that research led to a second LIDP (Stone and Collins, 2013), which subsequently led to the Library Analytics and Metrics Project (LAMP) (Jisc, 2017d). LAMP highlighted the lack of tools and services for libraries to exploit library analytics data and explored the potential of a shared analytics service for UK academic libraries. A prototype architecture was designed and built around a series of APIs delivering data to a web dashboard. As the LAMP project approached the delivery phase, Jisc’s Learning Analytics project emerged and it was apparent that the LAMP dashboard would be better delivered as part of a larger learning analytics programme leveraging opportunities for machine learning prediction on library data.

In the initial design of Jisc’s Learning Analytics architecture the focus was on VLE (Virtual Learning Environment) data, with library data to follow later. The same team working on both Learning Analytics and Analytics Labs, however, led to the realisation that whilst waiting for the library data component, there was scope for other engagement: to explore the extent of collectable library data in the sector, investigate the ease with which it could be extracted and used, and determine how readily it could be combined with other datasets. With this thinking, Jisc decided to fund an extra, unplanned phase of the experimental Analytics Labs process targeted at a library audience.

The approach
The project ran over 12 weeks from mid-July to early October 2016. Five cross-institutional teams participated from 23 individual university libraries, totalling 29 members. An additional team joined comprising staff from two of Jisc’s library support services: Jisc Collections (Jisc, 2017c) and the Journal Usage Statistics Portal (JUSP) (Jisc, 2017e). Their purpose was to investigate service enhancements and provide evidence to improve the collections negotiations undertaken for the HE sector.

Agile methodology
Each team planned and arranged its work using the same Agile methodology (Agile, 2017) used successfully by the previous two cohorts of university planners. This included following the Scrum approach (Scrum, 2017), with each team having a Product Owner, team members and a Jisc Scrum Master, and work being carried out across three successive self-contained development phases (‘sprints’). A number of adaptations were made to the standard Agile Scrum process due to the non-technical and disparate locations of team members. These adaptations included the addition of a ‘Data Wrangler’ from the Centre for Educational Technology, Interoperability and Standards (Cetis, 2017), providing support for sourcing, gathering and manipulating data into formats more digestible by the team. The Product Owner had overall responsibility and oversight for setting the vision for the team by determining ‘user stories’ - problems that the teams wanted the data visualisations to address. Team members had responsibility for identifying appropriate data sources needed to address the user story and creating the dashboards, supported by the Data Wrangler who obtained and structured data received from HESA, or sourced
open data sets available on the internet, for example the National Student Survey (NSS) results (Hefce, 2017). The Scrum Master’s responsibility was to support the team in following the Agile Scrum workflow, for example, by removing any impediments the team encountered and liaising centrally with other teams’ Scrum Masters, Jisc’s technical staff, and HESA.

Another adaptation was a result of participants only donating one full day per week for each of the 12 weeks in the development cycle. Following the Scrum process, development is encapsulated within sprints having a tangible output as the end result. The Scrum recommendation is that sprints typically last for one to two weeks, but due to the limited time contribution, sprints were instead extended across a four week period, with each team completing three across the project. Each sprint began with a face-to-face planning meeting. In the first sprint this meeting crucially included generating user stories and identifying data sources, while the second and third sprint’s meetings instead included a retrospective review of processes and task completion from the previous sprint and changing scope if necessary. Planning involved identifying the tangible output, or ‘sprint goal’, which would be delivered at the end of the sprint which would contribute towards completing the user story. The series of tasks required to realise the sprint goal were then compiled into a list, prioritised, and allocated to team members. Weekly progress meetings were held virtually via Skype (Skype, 2017), or similar video conferencing mechanisms. These meetings were an opportunity to raise any issues with the Scrum Master, who could seek a resolution, ideally before the team came together at the end of the day for another call.

The project culminated with a showcase event at which teams presented their dashboards to each other and an expert panel from HESA, Jisc and a representative from SCONUL (Society of College, National and University Libraries) (SCONUL, 2017). The experts gave feedback on each teams’ dashboards with HESA giving an indication on the potential for the delivery of each dashboard via HEIDI Plus. The entire audience also provided feedback using red, amber, or green flashcards, providing an indication of community interest in using the dashboards.

User story development
Creating user stories is a key element of Agile working. They provide the vision for development, and the process of creating them ties development to user need and ensures there is no project scope creep. There are four simple elements to creating a user story via addressing: who, when, what and why. The ‘who’ refers to some user attempting a task, ‘when’ provides context for what the user wants to do, ‘what’ refers to the user’s motive and need and ‘why’ speaks to the desired outcome upon completion of the activity. These elements are essential to a good user story, and written well, a good user story helps ensure that a development team stays focused on the task at hand and delivers on the team goal. Each team developed on average four user stories, co-ordinated by Scrum Masters to ensure there was no duplication amongst the teams.

Outputs of the Library Analytics Labs
In total, 19 unique user stories were created by the five cross-institutional library teams, with a further three by the Jisc team. As a result, a wide variety of proof-of-concept dashboards were created addressing a range of library issues, with over 40 being demonstrated at the showcase event.

It was recognised from the outset that stories from the library sector may not necessarily be deliverable via HEIDI Plus, and that a parallel interest in analytics provision may lead to alternative release routes for the dashboards and concepts. In particular, system data uploaded from participating institutions, for a number of reasons, is not available within HEIDI Plus, whereas it may be available in Jisc’s Learning Analytics project under data sharing agreements. In this regard, the first output from the process was a comprehensive agreement (Jisc, 2016) covering the sharing of library data between universities and Jisc.

Of the outputs, four user stories from two teams were selected for provision via HEIDI Plus, and outputs from two more teams have been used to inform the development of learning analytics dashboards in Jisc’s Learning Analytics dashboard suite. Outputs from the Jisc team have provided the basis for future developments for the JUSP service and in an ongoing capacity for the Jisc Collections service. Dashboards not accepted in HEIDI Plus may find service on a Jisc delivery platform called Community Dashboards Beta, to be released later in 2017.
<table>
<thead>
<tr>
<th>Id</th>
<th>Full user story</th>
<th>Dashboard</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>As a Library Manager/Subject Specialist, I want to understand the impact that space provision has on student satisfaction, usage levels and interaction types, So that I can replan space to better address student needs</td>
<td>Student satisfaction with library space provision and use</td>
<td>NSS SCONUL</td>
</tr>
<tr>
<td>2</td>
<td>As a Library Analyst, I want to know which factors in library management affect student satisfaction levels, So that I can make changes to these to try to improve student satisfaction</td>
<td>Library services provision and student satisfaction</td>
<td>--</td>
</tr>
<tr>
<td>3</td>
<td>As a Library Manager/Director, I want to using a range of measures, identify comparable institutions in order to benchmark my library facility by size, usage levels, budget, provision of different resource types and satisfaction with library facilities, So that I can understand where library provision within my institution is currently rated against similar facilities, Inform spending decisions and track impact of changes</td>
<td>Benchmarking Universities and the NSS Results</td>
<td>--</td>
</tr>
<tr>
<td>4</td>
<td>As a Library Manager/Director, I want to better understand how different student groupings (FTE, PTE, PGR, alumni, distance learners, mature students) and those with protected characteristics, use the library facilities and assess their satisfaction levels, So that I can better market the library services, better inform spending decisions, plan space allocation, assess stock type levels (print vs. e-book), decide whether to change opening hours, address widening participation agenda</td>
<td>Student Engagement with the Library</td>
<td>--</td>
</tr>
<tr>
<td>7</td>
<td>As a Library Director, When performance &amp; survey data is released, I want to benchmark against competitor institutions, So that I can highlight resource gaps and success stories</td>
<td>Total serial subs vs APC expenditure</td>
<td>--</td>
</tr>
<tr>
<td>8</td>
<td>As a Library Director, When supporting the university TEF return, I want to link library performance data with NSS and HESA data, So that I can show how library resources and services contribute to TEF</td>
<td>NSS &amp; SCONUL 2</td>
<td>NSS SCONUL</td>
</tr>
<tr>
<td>9</td>
<td>As a Library Director, When assessing research performance, I want to assess university, discipline and individual citation performance, So that I can measure progress against citation KPIs and REF aspirations</td>
<td>Study Spaces</td>
<td>NSS SCONUL</td>
</tr>
<tr>
<td>10</td>
<td>As a Library Director, When participating in national planning and negotiations, I want to assess trends in subscription costs and Open Access publishing, So that I can contribute to national scholarly publishing strategies and policies</td>
<td>TEF NSS Questions</td>
<td>NSS SCONUL</td>
</tr>
<tr>
<td>11</td>
<td>As a Research Office Director, When directing the University’s annual research assessment and REF preparation, I want to see data about research outputs, So that I can measure the University’s progress towards its REF target</td>
<td>Geographic trends</td>
<td>NSS SCONUL</td>
</tr>
<tr>
<td>12</td>
<td>As a academic liaison Librarian, When preparing to meet with Departmental representative for my school/departments to discuss student support, I want to be able to show what e-resources the departments/schools are using, So that I can ensure that we are subscribing to/purchasing the right content and to make changers if necessary and to demonstrate we are providing relevant resources.</td>
<td>Article number by publisher</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Journal articles searchable by author</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of articles/citations via scho.</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>REF data and HESA numbers</td>
<td>HESA REF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Top ten articles with the most citations by school</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Compare costs between institutions</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cost per use of e-resource</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>How does usage change over three years</td>
<td>EZproxy JUSP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Which students use which e-resources</td>
<td>EZproxy Institutional data</td>
</tr>
</tbody>
</table>
| 13 | As a academic liaison Librarian, When preparing departmental ‘engagement reports’ for schools/departments to discuss student support, I want to count e-resources access events broken down by student type, So that I can understand how e-resources are being used in a department/school based on the level of study | Which departments are using most | EZproxy  
Institutional data |
| Which resources are being used by departments overall | EZproxy  
Institutional data |
| Which resources are used least | EZproxy  
Institutional data |
| 14 | As a Library Manager, When budgeting, I want to compare library spend on information resources by subject, So that I can save money | Explore information resource spend | SCONUL |
| Information resource spend overview | SCONUL |
| 15 | As a Library Manager, When resourcing, I want to compare resource spend, NSS scores and REF metrics for a subject to other institutions by proximity band and class, So that I can benchmark my institution against competitors | Comparison by distance | HESA  
UK Learning Providers |
| Comparison by NSS score | HESA  
NSS  
SCONUL |
| Comparison by REF:2014 metrics | HESA  
REF  
SCONUL |
| 16 | As a library manager, When investigating barriers/impediments to library use, I want to expose variations in library access between different user groups, So that I can take action to rectify inequalities where they are evident | Engagement and Equalities | EZproxy  
Gate entries  
HESA  
Loans |
| Loans vs minutes in the library & bytes on/off campus | Counter reports  
EZproxy  
Gate entries |
| Visits vs loans | Counter reports  
Gate entries |
| 18 | As a Library manager, When reviewing book stock, I want to establish the age profile and usage patterns of the collection, So that I can provide a relevant print collection appropriate to support the subjects taught at my institution | Age of stock by publication date | -  
Acquisitions |
| Age profile of books | Acquisitions |
| Deprivation vs loans and outcomes | HESA  
IMD  
Loans |
| Jacs to Dewey for books | Acquisitions  
JACS |
| Using what you’ve paid for | Acquisitions  
Loans |
| 19 | As a Budget holder, When allocating funds, I want to cross-reference funding and usage patterns in key subject areas against NSS scores, socio-economic, demographic and other relevant data, So that I can more effectively target funds to support the subjects and user groups that need it | Choosing Core Subscriptions | Acquisitions  
Journal Citations |
| Journal pareto | Journal Citations |
| Journal Usage cost & impact | Acquisitions  
Journal Citations |
| 20 | As a Jisc collections manager, When negotiating agreements with publishers, I want to understand usage data for their journals in context, So that I can better understand and have the evidence needed to negotiate a better deal for the sector | Usage for RSC | -  
Jisc Collections Subscriptions |
| 21 | As a Jisc collections manager, When negotiating agreements with publishers, I want to understand usage data and measures of quality across publishers in similar disciplines, So that I can better understand and have the evidence needed to negotiate a better deal for the sector | Usage for RSC | Altmetrics  
H5-index  
Impact Factor  
Jisc Collections Subscriptions |
| 22 | As a Jisc collections manager, When negotiating with publishers, I want to understand the financial value of an agreement in context, So that I can better understand and have the evidence needed to negotiate a better deal for the sector | RSC Usage by institution | Jisc Collections bands  
Jisc Collections Subscriptions  
NSS  
REF |
| 23 | As a a journal librarian at the University of XX, When assessing usage of an agreement, I want to better understand my usage profile when compared to other universities in my Jisc Band, So that I can make best use of my Jisc subscription | Institutional profiling | Jisc Collections bands  
Jisc Collections Subscriptions  
NSS  
REF |
Dashboards and tools for descriptive analytics

Two teams were interested in exploring the potential of visualising private institutional data, which disqualified them from inclusion in HEIDI Plus but was still of interest from the perspective of Jisc’s Learning Analytics programme. User stories 12, 13, 16, 18 and 19 above were those focusing on such analytics.

The first team investigated a range of dashboards concerned with e-resource usage. In user story 12, to highlight which e-resources are in use by students from which departments, they combined EZproxy data with institutional data linking students to departments and courses. A second dashboard made it possible to view historical trends over three years. Additional dashboards broke down the cost-per-use of each e-resource, and finally a benchmarking dashboard allowed comparison of such costs between institutions. The latter used dummy data to achieve a proof-of-concept, but one which Jisc’s national learning records warehouse (Jisc, 2017a) and sufficient data usage agreements may well be able to bring to fruition.

Story 13 continued with an extra dimension – to break down e-resource usage by student type. Dashboards revealed which departments and students were using the most e-resources, which resources were being used least, and which resources were being used overall, with filters available to limit the view based on level of study and other factors.
The other team analysed information resources provision within libraries using a variety of metrics as per stories 16, 18 and 19. Story 19 explored the need to review the value of e-journal subscription deals by looking at usage and cost and the likely effects of swapping titles in and out of a deal, and the cost effectiveness of the deal itself. Datasets used included JUSP data (Jisc, 2017e), Ulrich’s subject headings, journal impact factors and cost information. Usage was explored between 2011 and 2015 and the entire COUNTER JR1 report (COUNTER, 2017) was included for the team’s institution, showing aggregated usage across multiple platforms. Options to analyse usage, cost and impact included subject area, individual journal title, and a cost-per-use metric for a journal article download. This was available as a slider option to set a cost-per-use threshold. For example, the cost of an Inter-Library Loan could be used to observe which titles were above threshold and therefore may be better to cancel. The combination of cost-per-use data with impact factor provided an immediate visual impact making further analysis easier. Those titles with high cost-per-use combined with low impact factor were instantly identifiable, thus providing a ready cancellation list for consideration. Alternately, a slider option for impact factor was also included and could be used to focus further analysis on a smaller set of journal titles. Year-on-year usage correlation was also presented and showed the likelihood of continued usage for a given title, also very helpful in making evidence-based collection management decisions.

Another demonstrator dashboard visualised usage data by publisher over a five year period, compiled using a single institution’s data. A Pareto chart was able to show visually that 80% of the usage in a deal came from only 22% of the titles included, with each title and its usage identifiable simply by hovering over each data point in the chart. Merging this with core titles information via a bar chart shows that high usage does not necessarily correspond to core status. This provides a quick visual indicator of titles which should be further analysed, especially if the nature of the deal or core titles was to change.

A set of visualisations supporting story 18 combined acquisitions, loans and institutional student data to address collections management, looking at age of stock by publication date, the age profile of books, and an educational chart reviewing which departments’ students are using books versus which department paid for them.

The team had ideas for further visualisations but found difficulty correlating datasets, with some open datasets using JACS codes but other internal datasets using the institution’s Dewey Decimal reference number (Dewey, 1876). A need for a JACS/Dewey lookup table was identified, but it was recognised that implementations of the Dewey Decimal system are institution-specific. As a result, the team designed a methodology which would allow an institution to craft its own JACS/Dewey lookup by combining taught module/JACS lookups from course data with ISBN/Dewey lookups (ISBN, 2017) from the library system, via reading lists (linking module to ISBN). Thus, a tool and a methodology were also outputs from the Library Data Labs project (Baylis, 2017).

The final story, 16, produced a comprehensive dashboard breaking down Library engagement by demographic categories – a topical subject in learning analytics. This dashboard introduces the concept of an engagement metric, which is made up from the various types of activity a student can participate in – loans, gate entries, e-resource usage, etc. A key issue in demographic subgroup analysis is the risk of identifiability when groups become small, which limits the audience for the dashboard according to data protection legislation. For that reason, the first panes of the dashboard are visualisers to illustrate the size of cohorts before being broken down, and then their size after various demographic breakdowns. A tool such as this could limit further visualisations should numbers be too small; indeed, one of the immediate points which draws the eye is that some cohorts are so small as to be identifiable before any further breakdown.

Further panes address benchmarking the engagement of groups broken down by gender, ethnicity and disability against the average level for all students, highlighting groups with significant departure from the average; then drilling down into a similar illustration for age and nationality. The final pane allows for breaking down the engagement score components by age, although it could be easily extended to any of the other characteristics.

Supporting dashboards for story 16 looked at loans versus both visits and time spent in the library; and volume of e-resource files downloaded on versus off campus. One final chart combined the Indices of Multiple Deprivation data (Dept. for Communities. & Local Govt., 2015) in order to chart deprivation versus loans and outcomes, demonstrating with a trend line
that there is a loose correlation between the IMD rank and the number of loans a student makes and highlighting the final degree class of users with an optional filter.

Other Findings from the Library Labs Process

Data issues surfaced

There were a number of common issues across teams, many of which were already known in the sector, but Library Data Labs was an opportunity for teams to discuss and share these issues collectively. Key issues are that library data is “collected in silos”, and there is a “lack of availability of off-the-shelf data to answer many of our questions”. With the exception of SCONUL data, there is no collection at the national level, and even within SCONUL data, there are standardisation issues. For example, certain questions can be open to interpretation from institution to institution and are therefore subjective; other questions are optional, precluding UK-wide comparison.

Participant perspective

For many participants of the Library Data Labs, this was their first opportunity to have access to either the wealth of data available from HESA, or licensed Tableau visualisation software, and in many cases both. Participants had to grasp many new concepts quickly, and for many Agile working was another unfamiliar addition. Working with colleagues at other institutions was also a challenge in terms of logistics, timing and location. The outputs of the Labs are a testament to how well these obstacles were overcome, and in fact much of the feedback mentions how useful it was to work with others facing the same questions, reporting this as a key benefit of taking part in the project. For example, Simon Bains, Head of Research Services and Deputy Librarian, The University of Manchester, commented:

“Library Data Labs is a hugely worthwhile concept, with the potential to deliver a step change in data literacy and data-driven decision-making in libraries. I found it to be very rewarding to work with and learn from colleagues across the sector and to gain practical experience of agile project management and data visualisation software. This is an opportunity to contribute to national efforts to use data to answer strategically important questions about the use and impact of academic libraries”.

Future for Library Analytics and Jisc

Following the project showcase in October 2016, HESA reviewed all 19 user stories to determine which were suitable for delivery via their HEIDI Plus service. Selection criteria included availability of the data required, scalability and relevance to the sector and the effort required by HESA to make the dashboards robust enough for service level quality. Following the review, HESA will be making dashboards available from the four stories described above.

Enhancements for Jisc library support services

Following the proof-of-concept dashboards, the Jisc team decided to further develop and refine their JUSP specific dashboards. Several new scripts were created to aggregate data to a suitable level, such as total accesses per month, publisher and institution; aggregated data was then used to produce visualisations for individual institutions, including:

- Calendar or academic year usage trends per publisher, showing monthly data over multiple years
- Turn-away data.
- Individual publisher usage by calendar or academic year, showing multiple years
- Top {x} publishers per year
- Trends in usage for direct publisher access versus gateway usage
- Institutional comparison by Jisc band, by publisher

Throughout 2017, these visualisations have been tested with a select group of users, including the JUSP Community Advisory Group (CAG). Feedback was very positive and included several suggested amendments and additions, particularly around exporting visualisations for use in local presentations or documents. These requests are currently being addressed and further refinement will be carried out by the JUSP team before these service enhancements are released in autumn 2017.
Developments have also extended to the Jisc Collections service. Since 2016, a research team has been in place to advise Jisc Collections in licensing and negotiation activities with publishers and suppliers. This team have taken forward experiences and knowledge gained from Library Data Labs, bringing together data sets and analysing these in detail using visualisation software. Using consortia-level data (usage, deal and cost information), the research team have been able to provide better evidence as to the value of Jisc Collections deals to inform future negotiations.

Further work
The positive outputs and feedback from the process mean that Jisc’s work in this space continues. A further Library team took part in an Analytics Labs development cycle from April to July 2017. The Product Owner was formerly a team member in the Library Data Labs project and made the most of the opportunity to develop new dashboards. One user story focused on the effect of changes to the SCONUL expenditure figures for total library spend per FTE student to the NSS score for question 16 over a five year period. Also included were the other two key expenditure figures around spend for both information / staff per FTE student. This visualisation shows NSS scores plotted against one of the SCONUL spend metrics and includes average lines for both the NSS scores with the expenditure appearing as cross hairs. These average lines make it easy to see which institutions are scoring higher for less money. The visualisation allows the user to plot their own institution and track progress over time; explore and compare how other institutions are faring; and determine which institutions to investigate in order to improve their own NSS score.

In parallel, Jisc’s Learning Analytics initiative has moved on to address the collection of basic library interaction events such as logins, borrowing and accessing content. This is being carried out with a number of library systems providers to investigate direct extraction of such data, and automated submission into learning records data warehouses. Jisc’s learning records warehouse already houses data regarding the usage of other systems such as VLEs and attendance monitoring systems, as well as student demographic and attainment data. The architecture of Jisc’s learning records warehouses offers the opportunity for data to be joined and analysed as a whole, as teams have started to do in the Library Data Labs project; but also for data to be consumed by other systems such as machine learning and predictive analytics processes. Once library data can be extracted into the warehouse, future work will involve adapting the machine learning algorithms already in use on the learning analytics project to include the new library data.

The combination of available data and good cross referencing between datasets, illustrated via the analytics dashboards and tools created as a result of Library Data Labs, can help address the kind of day-to-day business questions that decision makers need to be able to answer. With proof-of-concept dashboards like these, the impetus is upon bodies such as Jisc to help solve data problems so that the whole sector can benefit from enhanced business intelligence and analytics.

Acknowledgements
With thanks to all Library Data Labs team members, HESA and Jisc colleagues and to SCONUL and Altmetrics for sharing data for use in the projects. Thanks also to the authors of the forthcoming article available later in 2017 in Information and Learning Science. That article has formed the basis of certain aspects of this article and they complement each other.

References


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Introduction to Assessment Methods: Surveys, Interviews, & Focus Groups

Conducting assessments in libraries requires a variety of assessment tools. Having an assessment tool requires that you learn how to use the tool correctly. In assessments, this includes using it in a way that protects the rights of the participant while gathering the data you need. It also requires that those using the tool use it in a way for which it was designed.

This article examines three common assessment tools (surveys, interviews, and focus groups) to provide some guidance on how each tool may be used. This article does not provide a full discussion on the use of these tools, but it is a starting point for those wishing to use the tool.

Common Features of Surveys, Interviews, and Focus Groups

Each assessment tool has overlap in regards to actions and principles for using the tool. This section outlines some of the commonalities between all three tools.

Informed Consent

Since each of these data collection tools involves the use of human subjects, I recommend that the entire assessment undergo the scrutiny and expertise of the university’s Institutional Review Board (IRB) or other office governing the collection of data from human subjects (Matthews, 2007; Pazzaglia, Stafford, & Rodriguez, 2016). While some feel that this step is somewhat burdensome, it provides a second look at the assessment to ensure the protection of those participating. Some institutions do not require an IRB approval for assessments used only within the institution for improvement purposes; however, even in these instances it is worth seeking this approval for a second look at assessment practices that may be questionable. It also provides the opportunity to publish and present on the assessment findings so that others may learn from your experience. If the first rule of research is “Do no harm,” the second rule would certainly be “Share what you find to benefit others.”
Informed consent only applies when human subjects are involved in the assessment. For example, if you were assessing how quickly books are reshelved once they are returned to the library, no consent would be needed as the object of the assessment is the books and no person is being observed or interviewed. While some evaluations use deception, I recommend that evaluations be as transparent as possible and no deception be used unless there is a strong valid reason to do so.

There are typically three main types of informed consent:

**In-person.** When you collect data in a face-to-face interaction, you should use a paper copy of an informed consent. Doing so enables the participant to read what the assessment is about and what their commitment will be. You also serve as a witness that the participant read and signed the consent. If desired, the participant should receive a copy of the consent to take with them. A consent form template is in the appendix.

**Implied.** Implied consents provide the same information as an in-person consent, except that the participant provides consent without signing. In its simplest form, an implied consent occurs when a researcher asks a participant if they would be willing to answer a few questions. If the participant consents, the researcher asks the questions. The researcher should record the asking of the consent question to verify the oral consent. More typically implied consents are the first question of an online survey. Since the participant and the researcher never meet, the consent will finish with a statement asking the participant to click on a “yes” response to indicate their willingness to participate or a “no” to indicate that they do not want to participate.

**Special Circumstances.** In some assessments, there may be special circumstances. Typically, these circumstances involve the video recording of data from a focus group. Video recording a focus group is important for the transcriber to see who is responding so a
respondent’s comments are correctly attributed. It may also occur with software that records computer screen shots and audio as the participant navigates a webpage. In either case, extra identifying information is recorded and the participant has the right to determine if and how this data may be used beyond analysis of the assessment specialist. Examples of this additional level of consent are at the end consent form template in the appendix.

**Bias**

Every assessment has built in bias, but you can take steps to help mitigate these biases. Biases come in many forms (political, religious, language, etc.). It is always good to review questions with others not associated with the assessment to check on any potential bias.

I only discuss three biases here.

**Cultural.** This type of bias not only refers to the national or regional differences that make up culture, but it also refers to other cultures surrounding the participant. For example, engineers have a different culture than those in education or business. The survey needs to use words and descriptions that explain and define the questions and responses. It takes into account the historical differences of cultures involved and language used by each culture. The survey should provide clear understandings of what these terms mean. It also avoids using terms that may be offensive to a given culture.

**Gender.** Unless the question is specifically referring to a single gender, neutral terms (one, their) or all genders should be used.

**Researcher.** Every researcher has his or her own biases based on personal experience (culture, education, and upbringing). Researchers should be aware of these biases and account for them. While the researcher may anticipate an assessment’s results or hope that the results
indicate a specific finding, he or she should not slant the data towards that bias. Be ready to be proved wrong.

Scope

Scope begins with discussing with all decision makers what they want to know and understand better from the assessment. Identify the data that you need to answer the questions you want to answer. Setting the scope of the assessment tool determines if the tool you are using is best for the data and, ultimately, the understandings you want to get. Limit the amount of data you are collecting to specific items unless the assessment is something that you are able to do only once. For example, we recently examined prototypes combining a Help Desk and a Circulation Desk into a single desk with a more visible presence. The prototypes only focused on the location of the new desk and the flow of traffic around it. Once a location was chosen, different configurations of the desk were examined. However, blending the two (location and configuration) confounds the study and makes the data more difficult to understand. It also confounds the data collection and analysis, if, during the data collection, those individuals involved added other areas to be assessed or other desk features they wanted to examine.

It is also important to define the limits of the study, especially when working with other people responsible for the area or service (Irwin & Stafford, 2016; Pazzaglia et al., 2016). Set the parameters and have them sign off on what the assessment covers. If they want to add things to the assessment (scope creep), you have the agreed upon plan as a reference. Rather than expand the study and complicate the data collection and analysis, it would be better to conduct additional assessments. The subsequent assessments may start at natural points of alteration. For example, we recently assessed security employee interactions with library employees and patrons. The study ran over the course of two semesters and we planned all data collection components from...
the outset. However, in the first semester, we discovered library patrons, library employees, or security employees did not know or understand library rules. Because there was a natural break from the first to second semester and each semester used a different class of student researchers, we were able to add an examination of library rules in the second semester. This addition to the study occurred during a natural break and informed the overall study instead of complicating it.

A summary list of items that may be included in a scope statement include:

- Define the problem.
- List the objectives (hypotheses) that you want answered.
- Understand and define the parameters of the study.
- Identify the time limits to study.
- Identify the geographic limits (all vs. part of the library).
- Identify the focus of the study (i.e., people or things—who or what is being examined)
- Provide broad descriptions or comparisons of groups involved in the study (e.g., all library instruction or level of experience—first year, advanced, specialty).
- Be aware of past trends and patterns.

With these commonalities in mind, I now discuss specific aspects of surveys, interviews, and focus groups. While these are discussed as separate tools, there will continue to be some overlap in how they are used.

**Surveys**

A survey is typically the most common assessment tool, simply because of its ease to administer and simplicity for analysis. However, both of these are contingent upon having a well-designed survey. The saying “Garbage-in; Garbage-out” truly applies to the design of this
assessment tool. We will briefly focus on three aspects of surveys: sampling, invitations, and writing questions.

**Sampling Size**

The number of people invited to participate in any survey depends on the importance of the survey. The more important the survey, the larger the sampling of the population will be. For example, in an assessment of library security, we wanted to hear from all library employees and a large sample of library patrons. We sent the same survey out over two semesters with the sample for each survey being half of all library employees. For the patrons we invited 5,000 out of a pool of 33,000 students to participate over the two semesters. These samples allowed us to hear from the entire population of employees and a large portion of patrons. The importance of the assessment determined the size of the two samples.

In other cases, those taking the survey determine the sample size. For example, we wanted to assess the patron’s experience with a recent exhibit. The assessment involved asking those who exited the display to complete a short survey on their experience. While the population was all those who attended the exhibit, our sample was limited to those attending the exhibit and agreeing to take the survey while we had our survey just outside of the exhibit. While the findings were important, they did not carry the influence of the previous security study. When choosing the size of the sample, I typically think of what amount of response will be sufficient for our needs.

Samples should be drawn from the identified population being assessed, but may be done so in several ways. The following are brief descriptions of some sampling methods (Borg & Gall, 1989; Matthews, 2007; Pazzaglia et al., 2016). These descriptions are quite brief. Before
choosing one method over another, you should examine the method in greater detail to determine if it fits your assessment needs.

**Guerrilla or quick sample.** This type of survey typically stops potential participants in a high-traffic area and asks if they would be willing to participate in a quick survey. The sample size is typically predetermined (e.g., we want to ask 100 patrons entering the library) or by the time allowed for the survey (e.g., for two hours on a Saturday morning).

**Random.** This sampling method is the gold standard as every person in the population has an equal chance of being asked to participate.

**Stratified.** This sample selects potential participants based on the percent of people in each group in the population. For example, if you know that 21% of all undergrad students are freshmen then 21% of your sample should be freshmen. The sample method ensures that each group in the population has a representative voice in the assessment.

**Systematic.** This survey selects the sample by some predetermined rules, such as selecting every ninth person from the population.

**Volunteer.** Participants in the survey decide if they will participate or not. It is also called self-selection. The example of the exhibit fits this sample selection where those attending the exhibit volunteered to take the survey.

In each case, the sample should fit the type of survey you are conducting and the methods you are using to conduct the survey. While a larger sampling size is generally thought of as being better because it is closer to the actual population, you also need to consider your entire assessment agenda. If you are sending out more than one survey in a semester, how many participants will you need for each survey? You need to consider all samples needed for all surveys. We have a policy of only selecting patrons once per semester for any survey. We also
plan how many participants we will need for each survey, so we do not run out of potential participants before the end of the semester. Doing so prevents assessment weariness, where those invited no longer wish to participate and become annoyed from repeated requests. When this happens, we struggle to get a good response rate. You should consider the needed sample size for each assessment.

**Invitations**

At some point, you will need to ask people to participate in your survey (Borg & Gall, 1989). This request can be as straightforward as stopping them as they walk past you and asking them to participate. It can be as complex as having multiple invitations and announcements. In the latter case, a person of authority sends an email or letter informing participants that the invitation to participate is coming and encourages them to participate. It may involve a single request to participate or an initial request with several reminders for non-responders. Each invitation has its benefits and drawbacks. For example, a pre-notification of the invitation lends importance and encouragement for participation, but if it comes with every survey, then its impact diminishes. Most leaders would need to have a strong interest in the results to lend this type of support. Reminders asking non-responders increases the response rate as some invitees forget to respond, but it can also irritate those who do not wish to respond. What follows are some comments on aspects of a survey invitation.

**Anonymous vs. personalized link.** Anonymous invitations do not identify who responds, but typically only allows for single invitation, which may result in a lower response rate. Sending reminder invitations after sending an anonymous link may have some, who have already answered the survey, respond or try to respond a second time. Anonymous links may also be forwarded outside of those included in the initial sample.
Personalized links allow the invitation to address the invitee by name. The link to the survey is unique to the person being invited, preventing someone not in the sample from taking the survey. Personalized links also allow you to send reminder emails to non-responders only. This practice generally increases the response rate and does not bother those who have already taken the survey. However, I urge caution on the frequency and number of reminders being sent out. Too many reminders or too frequent reminders tend to have a negative effect on the survey’s response rate and future survey participation.

**Confidentiality.** Invitations should address the concept of confidentiality. Assure participants that responses are confidential. There is a difference between confidential and anonymous. In the former, the identity of the person may be connected to their responses, but those connections are not revealed. In the latter, there is no connection to the participant and his or her responses.

**Flexibility.** The survey should be flexible enough for you to administer it in one of several ways, if needed. The survey should be available with paper and pencil, in-person, or online administration. This flexibility increases the options for how and where you administer the survey.

**Timing.** When sending the invitation, you need to consider the calendar of events around the invitation and administration of the survey. We avoid holidays and busy times (midterms or finals) for patrons. We do not administer surveys in the last month of the semester when students are busy finishing courses, course work, preparing for and taking final exams and faculty are completing courses and marking exams. Few want to respond when they are on vacation. Generally, we try to send invitations nearer the first of the week rather than the end.
Incentives. To increase participation one may use incentives, typically food or money. In the case of guerrilla studies, we will often have mini-chocolate candies as a way to say thank you to those taking the survey. On important surveys, we may place respondents’ names into a drawing for a major prize, like an iPad. Use incentives carefully and as needed so participants do not expect some type of compensation to participate on every survey.

Writing Questions

Writing the questions takes considerable care for a number of reasons. First, there is no opportunity for responders to receive clarification of what you are asking, so written questions need to be clear and focused. There can be no ambiguity, and shorter questions are preferred over lengthy ones. Generally, frame question stems in a positive rather than a negative manner and in the form of a question; but there are some exceptions to this practice. Check questions to determine if you are asking one or two questions. If you are actually asking more than one question, split it into two separate questions or determine which of the two questions is more important and only ask it. In various organizations, acronyms or at least very technical terms are commonly used. Those using the services may not know the terms or acronyms commonly used by those within a particular discipline. Ask the questions using common terms or define the terms you are using. When asking a series of questions start with the more general questions and work toward questions that are more specific. This is particularly important if your survey software allows you to display or exempt questions from the survey depending on previous answers. In some cases, you need to provide a context for the question, but, when doing so, make the context neutral to prevent bias toward one answer over another. It may also be helpful to have pictures or maps to assist with responses (Borg & Gall, 1989; Irwin & Stafford, 2016; McMain & Jerabek, 2004).
Nobody, absolutely nobody, is thrilled to take a very long survey, at least not without substantial compensation or unless it is regarding an issue they care a great deal about! The shorter your survey, the more likely you are to get someone to participate. Unless for a specific reason, we try to keep surveys under 10 questions and with a time limit of less than five minutes for a response. For this reason, only ask what you really need to know. Stick to the focus and scope of the survey. As mentioned earlier, alternate response questions (with only two or three possible responses) are good to use as sorting mechanisms for adding or eliminating questions. However, keep when determining the total time to take a survey, you need to include the largest number of questions that may be asked. Finally, when asking questions, make them about the responder’s personal experience, not the experience of others.

**Types of questions.** There are several types of questions. The questions shown below are a broad but not an inclusive list of all potential question types. How the survey is administered (paper and pencil or online) will determine what types of questions may be asked (Irwin & Stafford, 2016; Matthews, 2007). The following examples of questions are from the Qualtrics survey tool, but other tools have similar and different question types. The sensitivity of the survey subject matter also determines the methods and the type of questions used (Nuno & St. John, 2015).

**Alternate response.** Alternate response questions are a subset of multiple choice questions in that they only offer two choices (e.g., yes-no, male-female, up-down). They are used in a survey to disaggregate responses or to filter future questions in terms of those that will or will not be displayed (see Figure 1).
Multiple choice. There are two types of multiple-choice questions. The first only allows one choice from three or more options. The second allows the participant to select as many options as apply. Regardless of the response options, it is critical that all possible options are used or that the final choice is “other” with an option for the participant to state what that choice is (see Figure 2).

Matrix. When several multiple-choice questions have the same options (e.g., dislike, neither, like), the questions can be rearranged into a matrix grid with the options placed horizontally at the top and the questions vertically along the side. The participant will still select an option, but the participant can answer questions more quickly and in a more condensed space. You can use the “other” option for these questions but is not recommended because it complicates the analysis (see Figure 3).
Figure 3. An example of a matrix question.

**Slider.** A slider question asks the respondent to rate the question on a specific scale (see Figure 4). The scale is a bar, buttons, or symbols. There should be anchors on the scale to help the respondent gauge their response. That is, you should not just list ratings of 1–5, but state what each number represents or at least what the first, middle, and last term represent. You should also make a conscious choice of having an even or odd number of ratings; the difference being the option to be in the middle (e.g., a 2 on a 3-point scale) or having to choose one side over another. Use these with care on paper and pencil surveys, as respondents will mark their choice between ratings confounding the analysis.

Figure 4. An example of a slider question.
**Rank order.** This question provides several options and asks the person selecting to order the choices from most to least favorite or vice versa (see Figure 5). The online questions typically have a drag and drop option where the respondent uses the computer cursor to drag an option to its desired rank. Paper and pencil surveys will provide a space for the rank to be entered. Again, a problem may occur with paper and pencil surveys if the respondent thinks that two items are equal and gives each the same rating. Online surveys force a choice of one being rated higher than the other.

![Rank Order Example](image)

*Figure 5. An example of a rank order question.*

**Constant sum.** These questions typically ask the participant to determine what part of the whole each option represents. Most often, it uses percent as the total (see Figure 6). On paper and pencil tests, participants may not add the sum correctly.
Figure 6. An example of a constant sum question.

**Open response.** The open-response question allows the participant to provide his or her own answer to a question. This may be as simple as digits (e.g., How long have you worked in your position?), a short sentence, or a longer essay. In a survey, you use these questions to gain a greater understanding of why a person responded in the way that he or she did. You may also use them at the end of a survey to allow the respondent to provide information they want to give but you have not asked about. For example asking, “What else would you like to tell us about (topic) that we have not asked?” mimics an interview question in that it allows for a more open response but does not allow for follow-up questions to clarify (see Figure 7).

Without using names, please tell us about any incidents when you felt excluded from informal or non-work conversations with your co-workers.

Figure 7. An example of an open-ended question.
There are two cautions in using open-response questions. First, responses can be somewhat frustrating as people feel obligated to answer them, so they will put in some form of “nothing” as a response. This is more of a nuisance issue when analyzing. Second, they complicate the survey in that it may take some time to answer and analyze the response. People do not always write clearly and it may be difficult to understand what they are trying to say. Both issues complicate the analysis, but the greater understanding provided by these responses is invaluable. I urge you to use caution in how many of these questions are on a survey as they increase the time and effort to respond and analyze.

**Response Choices**

The key to good survey question is the potential responses (McMain & Jerabek, 2004). The responses should cover the entire array of potential answers survey participants may have. If this is the case, analysis is simplified and one can discern patterns and trends based on responses. However, you need observe key features in the writing of responses for survey questions.

It is important to avoid all-inclusive responses such as “every,” “never,” and “always” as a single counter case prevents the selection of these options. It is also important to include the “opt out” responses as needed. This response includes options such as, “I don’t know,” “I don’t remember,” or “not applicable.” These responses allow the applicant to be able to opt out when the other responses do not fit or the responder honestly does not know.

When possible the responses should include all plausible answers (e.g., a; b; c; a & b; a & c; b & c; abc). However, when this is not possible, the responses should include an open-ended response titled “Other: please specify.” Having this option allows for a response when there are too many possible responses or when all potential responses are unknown. In the case of too
Keep the responses as simple and clear as possible. When feasible keep the responses the same length and avoid overlap of phrases. Doing so helps to prevent response bias where a respondent selects a choice based on its length and not on its content. When you use similar responses on different questions, keep the order of the responses consistent on each question. For example, if the responses are no, maybe, yes, then this order should be consistent on all these types of questions. There should also be a logical order to the presentation of responses (e.g., alphabetical, numerical, low to high) unless there is a logical reason to break this pattern (e.g., listing the highest level of education), but even then the responses should have a logical progression. It is also good to provide a response format that is consistent throughout the survey. For example, it would be confusing to have responses vertical on one question and horizontal on the next. It is always good to have plenty of white space (no question or responses) to help improve the survey’s aesthetic quality.

**Demographic Questions**

Demographic questions disaggregate data for comparison among groups (Aleandri & Russo, 2015). Take care on the type and amount of demographic questions. Each demographic question increases the length of the survey. The shorter the survey the greater the response rate will be. Multiple demographic questions may be connected to identify a respondent. In this case, take care needs and provide assurances guaranteeing that respondent confidentiality is preserved. While demographic questions vary with each survey, typical demographic questions focus on gender, status (freshman or 1 year, sophomore or 2 years, junior or 3 years, senior or 4 years, super senior or 5+ years, master’s, doctorate, faculty), college or program, and major. However,
some demographic questions can provide multiple sources. For example, if you ask for the student’s major, the question asking for the student’s college can be eliminated as the major will identify the college.

The final item to consider for demographic questions is its location—first or last of the survey. While there is no definitive location, some things to consider include whether the response to the question is more important than being able to disaggregate the responses. The length of the survey will also affect responses as participants may tire of answering questions. The nature of the demographic questions may also cause respondents to stop answering questions.

**Format**

Each survey should begin with a statement indicating the purpose of the survey and seek the implied consent. This question should be a forced-choice question. That is, the respondent must answer the question before proceeding to the next. The information included must be transparent and concise. It should explain the purpose for the survey, the importance of the survey, and why the respondent’s participation is important.

The format of the survey is as important as the questions. If a survey feels cluttered and disorganized, it becomes less appealing and those who start may be less inclined to finish. There should be a good amount of open space to prevent a cluttered or compacted feeling. There should be a logical progression of the questions with each section clearly labeled. Depending on the survey software being used, the different questions may be blocked off or have page breaks so no questions are missed by the respondent not scrolling down. Use care in numbering questions. In some cases, the question will inform progression through the survey. In others instances it will
cause confusion, especially if a participant’s response allows them to skip questions (Borg & Gall, 1989; Irwin & Stafford, 2016).

If the survey is somewhat lengthy, using a survey question map will provide an overall plan of what questions are asked and when. This practice will provide a logical order where disaggregating questions are asked first (e.g., Have you ever used a public computer in the library?). Typically, ask general questions first with increasing specificity thereafter. This method allows the general questions to display or eliminate future questions.

**Interviews and Focus Groups**

While there are differences between conducting an interview and a focus group, there is significant overlap that allows us to discuss them together. We focus on sampling, the Utility Triangle, questions, and interview methods. The section finishes with discussion on the key differences when conducting a focus group.

**Sampling**

Sampling procedures will use the same selection methods as outlined in the survey section, however there are three key differences. First, you want to determine just how big of a focus group you want or how many people you need to interview. Both methods are designed for the specific purpose of a deeper examination of key issues. For this reason, you may limit focus groups to 10 people each but hold multiple focus groups, thus increasing your sample size. Additionally, you will need to decide if you want the group to be homogeneous or heterogeneous (Fern, 2001). For example, in a recent security study, we kept all focus groups homogeneous because we wanted to focus on the similarity of experiences of people in each group. With heterogeneous groupings, we compare and contrast to the experiences of multiple groups.
The second difference focuses on the total number of participants interviewed individually or as part of a focus group. As you are delving deeper into the participant’s experience, you will not be able to use as many participants. My experience suggests that when you start hearing the same experiences from one group to another or from one interview to another, then you have reached a saturation point and no further focus groups or interviews are needed. However, the number of focus groups may also be limited by time, money, and participants’ willingness to participate.

The third difference is how we choose interview and focus group participants. Typically, at the end of the survey we ask respondents to volunteer to participate in a focus group or an interview. A participant may volunteer for both, but we will only allow participation in one or the other, as the questions for both interviews and focus groups are often similar. From this pool of volunteers, we invite participants. This process allows us to examine survey results and conclude where we need greater understanding. However, we have also used the reverse process where we randomly invited participation in focus groups or interviews. Data from these experiences allowed us to craft stronger surveys and usability studies.

**Utility Triangle**

The Utility Triangle refers to the three key components of any interview or focus group. They are the time available, the number of questions, and interviewees. Each has a specific effect on the other two.

**Time.** The time refers to how much time you need for conducting the interview and analyzing the data. As a guideline, most one-on-one interviews should be conducted within 20 minutes and most focus groups should be done within an hour. There are exceptions to these rules, but time is important from the perspective of both the interviewee and the interviewer. The
Interviewee has given his or her valuable time to participate. If a specific time limit is given, the interviewer should remain within that time, unless the participant indicates that he or she wants to extend it, as may occur on a topic that is of great importance to him or her. From the interviewer perspective, the time limit becomes important if several interviews are scheduled back-to-back. If this is the case, always provide a buffer to allow one interviewee extra time, if needed, and time to exit before the next interviewee arrives.

The time also extends into the analysis of the interview. Listening to the interview will take the same time as the interview itself. Transcribing the interview allows for responses to be de-identified and specific sections to be reviewed. While there is software that assists in transcribing and one becomes more effective as they transcribe more, a rate of three or four minutes to transcribe each minute of the interview is common. You also need to plan for time to read the transcript while listening to the interview or focus group to verify accuracy. Also, use time stamps in the transcription so the evaluator can go directly to the recording, if needed. Finally, insert correct grammar into the transcription. This process takes some time, as people do not often talk grammatically correct. Note any additions to help clarify the transcription, typically with brackets. When the interview or focus group is video recorded, it is also good to note any nonverbal actions that add to the content.

**Number of questions.** In interviews and focus groups questions are more open-ended so it is a bit of a guess regarding how much time someone will take in the response. Again, much of the length of the response will determine how many questions you can ask. Be prepared to omit questions if the interview is running long. It is also good to review all the questions you are planning to ask, as interviewees will often provide the response to a later question when answering an earlier question. This removes the need to ask the later question. It is also
important to ask secondary questions to get greater understanding. Remember that the power of any interview is the opportunity to ask probing questions that require a more complicated response, resulting in a greater understanding.

**Interviewees.** Not all interviewees are equal. Because of their experience or expertise, some interviewees have greater importance to your assessment and so allow more time for those interviews. There are also interviewees who will talk more. Consider the time needed for this variation in responses. Finally, specific to focus groups, you need more time for larger groups. Our experience indicates that you can ask about 5–6 questions for groups of 8–12 people within an hour. This process allows each person to be able to respond individually, but it also allows for a bit of a response frenzy, where the comment of one participant encourages others to respond with similar or different experiences.

Each of these key components causes the other to increase or decrease in response to any changes. For example, asking more questions will increase the time. Time limits for the interview will influence the number of interviewees.

**Questions**

The primary purpose of interviews and focus groups is to delve deeper into the experience of interviewees. They provide greater insights into why participants did what they did or feel like they do. If a question begins with a verb (e.g., is, are, will, do, have), there is the option for a brief or one-word answer. For example, “Have you ever seen a patron struggling to find a book?” only requires a simple answer of yes or no. More open-ended questions (beginning with Who, What, Where, When, Why, and How) allow for a broader response. For example, “What things have you seen patrons do when struggling to find a book?” is the same question, but it asks the interviewee to provide specific instances and a broader response.
The interviewer should also be cautious about leading or biasing questions. This occurs when they need to provide a context for the question. Give care to provide a neutral context or ask the question in a neutral way. Also, avoid complex language associated with specific organizations. This language may include slang terms, acronyms, or technical language not understood by the patron. For example, reference desks may need to be described as desks where help is given to patrons. Circulation may be referred to as the checkout desk. Explain confusing or specific terms to interviewees. It is always a good practice to ask the questions to someone not associated with the library prior to the interview to determine what needs to be changed or explained.

When interviewing, have a list of the questions, but do not read them. Know the questions well enough to determine if a question was answered in an earlier response. Doing so will help those being interviewed feel like they are part of a conversation rather than a question and answer session. The conversation tone helps prompt better answers. It is always good to use secondary questions to gain further understanding. Some examples include, “Tell me more about [topic],” “Where else has this happened?” and “What is an example of that?” In each case, the secondary question provides a more specific response with deeper insights.

**Interview Methods**

This section refers to how the interview and focus group are conducted (Allison & Kaye, 2005; Bernard, 2006; Borg & Gall, 1989; Fern, 2001). While each interview will begin with a consent form, the interviewer can set the tone by taking a minute or two to “visit” with the interviewee. This informal visit may include asking about his or her job or status at the university (e.g., year at the university, program of study). The process helps the interviewer better understand the interviewee’s background. It also provides the interviewee an opportunity to start...
talking about an easy, favorite subject—they themselves! It helps put the interviewee at ease and break the tension of the first question. It is also important for the interviewee to feel comfortable. One-on-one interviews will often be in the interviewee’s office or a friendly, familiar place. Focus groups should also provide a friendly setting. Seating should be comfortable, with good lighting. There should be a comfortable space between participants.

When the interviewer starts the questioning, he or she should be comfortable with silence. Often those asking the questions feel awkward if more than 5 to 10 seconds elapse without anyone saying anything. This is OK! The interviewee may need time to think about their response. It is also important that the interviewer be as succinct and clear as possible. You are not conducting the interview to hear your own voice but, rather, that of the participant. Ask the questions and let the participant respond. You should also have active listening posture and provide nonverbal cues. Nods and simple encouraging comments can also facilitate responses. If you need to make notes, do so quickly so you can return to eye contact with whomever is talking.

Finally, unless there is a specific reason, every interview should be recorded (Borg & Gall, 1989; Matthews, 2007). A one-on-one interview may be an audio or visual recording. Focus groups should always be video recorded to assist those transcribing see who made the comment. Video recording also allows the transcriber to see nonverbal communication and describe it as part of the interview. The recording tool should be unobtrusive to the interview. The interviewer should be off camera so the focus is on the interviewee. As mentioned earlier, the interviewer may take notes but these should be brief and not interrupt the flow of the conversation. Often notes will be of comments that the interviewer wants to explore further. The intent is to have an accurate record of what was said, how it was said, and any other communications that inform the responses.
Focus Group Specific

Focus groups have several advantages and cautions (Matthews, 2007). The biggest advantage is to gain several people’s experience in a shorter period. If you conduct 10-minute interviews for each interviewee and you put 10–12 people in a 60-minute focus group to cover the same questions, you have a time saving of 40–60 minutes. Furthermore, responses from one person may prompt the memory of others in the group with similar or different experiences. It can also allow you to play the experience of one interviewee off the others. Doing so can provide richer discussions and responses.

However, with these advantages come cautions. In a one-on-one interview, the responses are confidential with only two people in the room. In a focus group, everyone gets to hear the responses of others. There needs to be more trust with all who are present. The interviewer can facilitate this by asking those present to keep all questions and responses confidential and not discuss what others said outside of the focus group room. There may also be negative effects from others. For example, at the onset of a focus group about library security, one participant stated, “I just want to say that I think security does a wonderful job and anybody who thinks different will have a problem with me!” You can obviously see how such a statement would influence the discussion. With the possibility of this happening, the interviewer should also make it clear at the beginning that those participating may have different experiences and opinions. You should set the tone for those participating by encouraging each to express their experiences and to respect the experiences of those within the group.

Several types of personalities will be at play within a focus group (Fern, 2001). Optimally, there is a balance between all present that allows for open responses and relatively equal time. However, if this does not happen the interviewer may need to curtail the comments.
of one person dominating the conversation or encourage another participant to share their experience. Do this by asking participants if they have had similar experiences or if they could provide specific experiences that support or refute a comment made by another. While this may present the opportunity for conflict, the interviewer must balance the comments with the “agree to disagree” or “respecting other’s experiences” comments.

Final Thoughts

The survey is truly the “work horse” of assessment. They are easy to administer and usually quite easy to analyze. Written well they provide a host of information for those seeking feedback. However, their construction is critical to getting the information needed. It is always good to have someone not associated with the survey read and take it prior to its administration to identify areas that need improvement. It is also important to be able to know when a survey is and is not the assessment tool to use.

As with most anything, good practice will improve your ability. Take the time to explore the options on the survey tool and focus groups you use. Prior to conducting an interview or a focus group, practice with a friendly, familiar group to gain experience and feedback. If you know someone with expertise in conducting interviews or focus groups, visit with them for advice or observe them when they conduct an interview or focus group. Once you have completed the interview or focus group, review the recording for the data but also do a meta-evaluation of how you asked questions and what you did. You may squirm as you do it, but remember no success is final and no flaw is fatal. Continuing to learn from others helps you develop your skill level and expertise with the tools you use.
References


Appendix: Example Template for Informed Consent

This consent form is an example. Modify it to fit the specific assessment. The underlined and italicized terms should be replace with appropriate terms. When you do not need an item in the consent form, delete it. For example, if video recording is not used, delete the last page. I recommend that you indicate the assessment in the title (Consent to Be a Research Subject).

Consent to Be a Research Subject

Introduction
This research study is being conducted by [insert name of principal investigator and position] at [insert institution] to determine [insert title of study or brief description of purpose of the research]. You were invited to participate because [insert reason the person was chosen].

Procedures
If you agree to participate in this research study, the following will occur:

- You will be [choose one of the following or insert appropriate activity: interviewed individually, interviewed as part of a focus group, observed or specify other activity], for approximately [insert length of time here] about your experience with [insert organization of entity here].
- The [insert activity] will be [choose audio, video, or insert recording method] recorded to ensure accuracy.
- The [insert activity] will take place in [insert specific location] from [insert time of day and, if possible, date].
- The researcher may contact you later to clarify your answers for approximately [insert time here] minutes.
- Total time commitment will be approximately [insert total expected time here] minutes.

Risks/Discomforts
Risks would be limited to discussing uncomfortable experiences with [insert organization or entity here] and/or speaking about your experience in front of a group [only add for focus groups or group interviews; otherwise delete]. Participants may refrain from the discussion or withdraw from the [insert data collection method].

Benefits
There is no direct benefit to participants other than the opportunity for the [insert organization or entity] to use the information to improve services.

Confidentiality
[Leave in for focus groups or group interviews only; otherwise delete] Also, because focus groups include discussion of personal opinions, extra measures will be taken to protect each participant’s privacy. The researcher will begin the focus group by asking the participants to agree to the importance of keeping information discussed in the focus group confidential. [He or
she] will then ask each participant to verbally agree to keep everything discussed in the room confidential and will remind them at the end of the group not to discuss the material outside. Only the researcher[s] will have access to the data collected. Any tapes and transcripts of the [interview, focus group, observation, other activity] will be destroyed five years after the data collection, analysis, and dissemination of findings.

Compensation
All participants are given [insert type of compensation – if no compensation is given then replace statement with “No compensation is given.”] as compensation for participation.

Participation
Participation in this research study is voluntary. You have the right to withdraw at any time or refuse to participate entirely without jeopardy to your class status, grade, or standing with the university.

Questions about the Research
If you have questions regarding this study, you may contact [insert the name of principal investigator or contact person along with contact information—phone number or email] for further information.

Questions about Your Rights as Research Participants
If you have questions regarding your rights as a research participant, contact [insert institution’s governing body over human subject research].

Statement of Consent
I have read, understood, and received a copy of the above consent and desire of my own free will to participate in this study.

Name (Printed): ___________________ Signature: ___________________ Date: __________
Video Release Form

As part of this project, I will be making video recordings of you during your participation in the research. Please indicate what uses of this video you are willing to permit by initialing next to the uses you agree to and signing at the end. This choice is completely up to you. I will only use the video in the ways that you agree to. In any use of the video, you will not be identified by name.

____ Video can be studied by the research team for use in the research project.
____ Video can be used for scientific publications.
____ Video can be shown at scientific conferences or meetings.
____ Video can be shown in classrooms to (elementary/middle/high school/college) students.
____ Video can be shown in public presentations to nonscientific groups.
____ Video can be used on television or the audio portion can be used on radio.
____ Video can be posted to a website (i.e., YouTube).

I have read the above descriptions and give my express written consent for the use of the video as indicated by my initials above.

Name (Printed): ____________________________ Date: ______________

Signature: ________________________________
Introduction to Assessment Methods: Surveys, Interviews, & Focus Groups

This workshop focuses on how to create and conduct surveys, interviews, and focus groups. Using interactive activities and lecture, this workshop discusses common features of these three tools, including informed consent, biases, invitations to participate, scope, and sampling size.

The workshop splits the remaining time between surveys and interviews & focus groups. Survey specific topics include key features to writing good survey questions (including response choices), format, demographic questions, and examples of question types. The section specific to interviews and focus groups includes discussion of the utility triangle, question writing, question asking, group dynamics, interview strategies, recording, and location.

I provide participants with a workbook of activities to guide through the workshop. It is also a resource for future use of these tools. Participants are encouraged to bring one or two assessment projects where these three tools may be of use. The intent is to provide participants with solid ideas and understandings they can use the next day in library assessment. While this workshop is intended for those wishing to learn how to use these assessment tools, all are invited to improve their skill set and to share their expertise and experience.
Introduction to Assessment Methods: Surveys, Interviews, & Focus Groups

Conducting assessments in libraries requires a variety of assessment tools. Having an assessment tool requires that you learn how to use the tool correctly. In assessments, this includes using it in a way that protects the rights of the participant while gathering the data you need. It also requires that those using the tool use it in a way for which it was designed.

This article examines three common assessment tools (surveys, interviews, and focus groups) to provide some guidance on how each tool may be used. This article does not provide a full discussion on the use of these tools, but it is a starting point for those wishing to use the tool.

Common Features of Surveys, Interviews, and Focus Groups

Each assessment tool has overlap in regards to actions and principles for using the tool. This section outlines some of the commonalities between all three tools.

Informed Consent

Since each of these data collection tools involves the use of human subjects, I recommend that the entire assessment undergo the scrutiny and expertise of the university’s Institutional Review Board (IRB) or other office governing the collection of data from human subjects (Matthews, 2007; Pazzaglia, Stafford, & Rodriguez, 2016). While some feel that this step is somewhat burdensome, it provides a second look at the assessment to ensure the protection of those participating. Some institutions do not require an IRB approval for assessments used only within the institution for improvement purposes; however, even in these instances it is worth seeking this approval for a second look at assessment practices that may be questionable. It also provides the opportunity to publish and present on the assessment findings so that others may learn from your experience. If the first rule of research is “Do no harm,” the second rule would certainly be “Share what you find to benefit others.”
Informed consent only applies when human subjects are involved in the assessment. For example, if you were assessing how quickly books are reshelved once they are returned to the library, no consent would be needed as the object of the assessment is the books and no person is being observed or interviewed. While some evaluations use deception, I recommend that evaluations be as transparent as possible and no deception be used unless there is a strong valid reason to do so.

There are typically three main types of informed consent:

**In-person.** When you collect data in a face-to-face interaction, you should use a paper copy of an informed consent. Doing so enables the participant to read what the assessment is about and what their commitment will be. You also serve as a witness that the participant read and signed the consent. If desired, the participant should receive a copy of the consent to take with them. A consent form template is in the appendix.

**Implied.** Implied consents provide the same information as an in-person consent, except that the participant provides consent without signing. In its simplest form, an implied consent occurs when a researcher asks a participant if they would be willing to answer a few questions. If the participant consents, the researcher asks the questions. The researcher should record the asking of the consent question to verify the oral consent. More typically implied consents are the first question of an online survey. Since the participant and the researcher never meet, the consent will finish with a statement asking the participant to click on a “yes” response to indicate their willingness to participate or a “no” to indicate that they do not want to participate.

**Special Circumstances.** In some assessments, there may be special circumstances. Typically, these circumstances involve the video recording of data from a focus group. Video recording a focus group is important for the transcriber to see who is responding so a
respondent’s comments are correctly attributed. It may also occur with software that records computer screen shots and audio as the participant navigates a webpage. In either case, extra identifying information is recorded and the participant has the right to determine if and how this data may be used beyond analysis of the assessment specialist. Examples of this additional level of consent are at the end consent form template in the appendix.

**Bias**

Every assessment has built in bias, but you can take steps to help mitigate these biases. Biases come in many forms (political, religious, language, etc.). It is always good to review questions with others not associated with the assessment to check on any potential bias.

I only discuss three biases here.

**Cultural.** This type of bias not only refers to the national or regional differences that make up culture, but it also refers to other cultures surrounding the participant. For example, engineers have a different culture than those in education or business. The survey needs to use words and descriptions that explain and define the questions and responses. It takes into account the historical differences of cultures involved and language used by each culture. The survey should provide clear understandings of what these terms mean. It also avoids using terms that may be offensive to a given culture.

**Gender.** Unless the question is specifically referring to a single gender, neutral terms (one, their) or all genders should be used.

**Researcher.** Every researcher has his or her own biases based on personal experience (culture, education, and upbringing). Researchers should be aware of these biases and account for them. While the researcher may anticipate an assessment’s results or hope that the results
indicate a specific finding, he or she should not slant the data towards that bias. Be ready to be proved wrong.

**Scope**

Scope begins with discussing with all decision makers what they want to know and understand better from the assessment. Identify the data that you need to answer the questions you want to answer. Setting the scope of the assessment tool determines if the tool you are using is best for the data and, ultimately, the understandings you want to get. Limit the amount of data you are collecting to specific items unless the assessment is something that you are able to do only once. For example, we recently examined prototypes combining a Help Desk and a Circulation Desk into a single desk with a more visible presence. The prototypes only focused on the location of the new desk and the flow of traffic around it. Once a location was chosen, different configurations of the desk were examined. However, blending the two (location and configuration) confounds the study and makes the data more difficult to understand. It also confounds the data collection and analysis, if, during the data collection, those individuals involved added other areas to be assessed or other desk features they wanted to examine.

It is also important to define the limits of the study, especially when working with other people responsible for the area or service (Irwin & Stafford, 2016; Pazzaglia et al., 2016). Set the parameters and have them sign off on what the assessment covers. If they want to add things to the assessment (scope creep), you have the agreed upon plan as a reference. Rather than expand the study and complicate the data collection and analysis, it would be better to conduct additional assessments. The subsequent assessments may start at natural points of alteration. For example, we recently assessed security employee interactions with library employees and patrons. The study ran over the course of two semesters and we planned all data collection components from
the outset. However, in the first semester, we discovered library patrons, library employees, or security employees did not know or understand library rules. Because there was a natural break from the first to second semester and each semester used a different class of student researchers, we were able to add an examination of library rules in the second semester. This addition to the study occurred during a natural break and informed the overall study instead of complicating it.

A summary list of items that may be included in a scope statement include:

- Define the problem.
- List the objectives (hypotheses) that you want answered.
- Understand and define the parameters of the study.
- Identify the time limits to study.
- Identify the geographic limits (all vs. part of the library).
- Identify the focus of the study (i.e., people or things—who or what is being examined)
- Provide broad descriptions or comparisons of groups involved in the study (e.g., all library instruction or level of experience—first year, advanced, specialty).
- Be aware of past trends and patterns.

With these commonalities in mind, I now discuss specific aspects of surveys, interviews, and focus groups. While these are discussed as separate tools, there will continue to be some overlap in how they are used.

**Surveys**

A survey is typically the most common assessment tool, simply because of its ease to administer and simplicity for analysis. However, both of these are contingent upon having a well-designed survey. The saying “Garbage-in; Garbage-out” truly applies to the design of this
assessment tool. We will briefly focus on three aspects of surveys: sampling, invitations, and writing questions.

**Sampling Size**

The number of people invited to participate in any survey depends on the importance of the survey. The more important the survey, the larger the sampling of the population will be. For example, in an assessment of library security, we wanted to hear from all library employees and a large sample of library patrons. We sent the same survey out over two semesters with the sample for each survey being half of all library employees. For the patrons we invited 5,000 out of a pool of 33,000 students to participate over the two semesters. These samples allowed us to hear from the entire population of employees and a large portion of patrons. The importance of the assessment determined the size of the two samples.

In other cases, those taking the survey determine the sample size. For example, we wanted to assess the patron’s experience with a recent exhibit. The assessment involved asking those who exited the display to complete a short survey on their experience. While the population was all those who attended the exhibit, our sample was limited to those attending the exhibit and agreeing to take the survey while we had our survey just outside of the exhibit. While the findings were important, they did not carry the influence of the previous security study. When choosing the size of the sample, I typically think of what amount of response will be sufficient for our needs.

Samples should be drawn from the identified population being assessed, but may be done so in several ways. The following are brief descriptions of some sampling methods (Borg & Gall, 1989; Matthews, 2007; Pazzaglia et al., 2016). These descriptions are quite brief. Before
choosing one method over another, you should examine the method in greater detail to determine if it fits your assessment needs.

**Guerrilla or quick sample.** This type of survey typically stops potential participants in a high-traffic area and asks if they would be willing to participate in a quick survey. The sample size is typically predetermined (e.g., we want to ask 100 patrons entering the library) or by the time allowed for the survey (e.g., for two hours on a Saturday morning).

**Random.** This sampling method is the gold standard as every person in the population has an equal chance of being asked to participate.

**Stratified.** This sample selects potential participants based on the percent of people in each group in the population. For example, if you know that 21% of all undergrad students are freshmen then 21% of your sample should be freshmen. The sample method ensures that each group in the population has a representative voice in the assessment.

**Systematic.** This survey selects the sample by some predetermined rules, such as selecting every ninth person from the population.

**Volunteer.** Participants in the survey decide if they will participate or not. It is also called self-selection. The example of the exhibit fits this sample selection where those attending the exhibit volunteered to take the survey.

In each case, the sample should fit the type of survey you are conducting and the methods you are using to conduct the survey. While a larger sampling size is generally thought of as being better because it is closer to the actual population, you also need to consider your entire assessment agenda. If you are sending out more than one survey in a semester, how many participants will you need for each survey? You need to consider all samples needed for all surveys. We have a policy of only selecting patrons once per semester for any survey. We also
plan how many participants we will need for each survey, so we do not run out of potential participants before the end of the semester. Doing so prevents assessment weariness, where those invited no longer wish to participate and become annoyed from repeated requests. When this happens, we struggle to get a good response rate. You should consider the needed sample size for each assessment.

**Invitations**

At some point, you will need to ask people to participate in your survey (Borg & Gall, 1989). This request can be as straightforward as stopping them as they walk past you and asking them to participate. It can be as complex as having multiple invitations and announcements. In the latter case, a person of authority sends an email or letter informing participants that the invitation to participate is coming and encourages them to participate. It may involve a single request to participate or an initial request with several reminders for non-responders. Each invitation has its benefits and drawbacks. For example, a pre-notification of the invitation lends importance and encouragement for participation, but if it comes with every survey, then its impact diminishes. Most leaders would need to have a strong interest in the results to lend this type of support. Reminders asking non-responders increases the response rate as some invitees forget to respond, but it can also irritate those who do not wish to respond. What follows are some comments on aspects of a survey invitation.

**Anonymous vs. personalized link.** Anonymous invitations do not identify who responds, but typically only allows for single invitation, which may result in a lower response rate. Sending reminder invitations after sending an anonymous link may have some, who have already answered the survey, respond or try to respond a second time. Anonymous links may also be forwarded outside of those included in the initial sample.
Personalized links allow the invitation to address the invitee by name. The link to the survey is unique to the person being invited, preventing someone not in the sample from taking the survey. Personalized links also allow you to send reminder emails to non-responders only. This practice generally increases the response rate and does not bother those who have already taken the survey. However, I urge caution on the frequency and number of reminders being sent out. Too many reminders or too frequent reminders tend to have a negative effect on the survey’s response rate and future survey participation.

**Confidentiality.** Invitations should address the concept of confidentiality. Assure participants that responses are confidential. There is a difference between confidential and anonymous. In the former, the identity of the person may be connected to their responses, but those connections are not revealed. In the latter, there is no connection to the participant and his or her responses.

**Flexibility.** The survey should be flexible enough for you to administer it in one of several ways, if needed. The survey should be available with paper and pencil, in-person, or online administration. This flexibility increases the options for how and where you administer the survey.

**Timing.** When sending the invitation, you need to consider the calendar of events around the invitation and administration of the survey. We avoid holidays and busy times (midterms or finals) for patrons. We do not administer surveys in the last month of the semester when students are busy finishing courses, course work, preparing for and taking final exams and faculty are completing courses and marking exams. Few want to respond when they are on vacation. Generally, we try to send invitations nearer the first of the week rather than the end.
Incentives. To increase participation one may use incentives, typically food or money. In the case of guerrilla studies, we will often have mini-chocolate candies as a way to say thank you to those taking the survey. On important surveys, we may place respondents’ names into a drawing for a major prize, like an iPad. Use incentives carefully and as needed so participants do not expect some type of compensation to participate on every survey.

Writing Questions

Writing the questions takes considerable care for a number of reasons. First, there is no opportunity for responders to receive clarification of what you are asking, so written questions need to be clear and focused. There can be no ambiguity, and shorter questions are preferred over lengthy ones. Generally, frame question stems in a positive rather than a negative manner and in the form of a question; but there are some exceptions to this practice. Check questions to determine if you are asking one or two questions. If you are actually asking more than one question, split it into two separate questions or determine which of the two questions is more important and only ask it. In various organizations, acronyms or at least very technical terms are commonly used. Those using the services may not know the terms or acronyms commonly used by those within a particular discipline. Ask the questions using common terms or define the terms you are using. When asking a series of questions start with the more general questions and work toward questions that are more specific. This is particularly important if your survey software allows you to display or exempt questions from the survey depending on previous answers. In some cases, you need to provide a context for the question, but, when doing so, make the context neutral to prevent bias toward one answer over another. It may also be helpful to have pictures or maps to assist with responses (Borg & Gall, 1989; Irwin & Stafford, 2016; McMain & Jerabek, 2004).
Nobody, absolutely nobody, is thrilled to take a very long survey, at least not without substantial compensation or unless it is regarding an issue they care a great deal about! The shorter your survey, the more likely you are to get someone to participate. Unless for a specific reason, we try to keep surveys under 10 questions and with a time limit of less than five minutes for a response. For this reason, only ask what you really need to know. Stick to the focus and scope of the survey. As mentioned earlier, alternate response questions (with only two or three possible responses) are good to use as sorting mechanisms for adding or eliminating questions. However, keep when determining the total time to take a survey, you need to include the largest number of questions that may be asked. Finally, when asking questions, make them about the responder’s personal experience, not the experience of others.

**Types of questions.** There are several types of questions. The questions shown below are a broad but not an inclusive list of all potential question types. How the survey is administered (paper and pencil or online) will determine what types of questions may be asked (Irwin & Stafford, 2016; Matthews, 2007). The following examples of questions are from the Qualtrics survey tool, but other tools have similar and different question types. The sensitivity of the survey subject matter also determines the methods and the type of questions used (Nuno & St. John, 2015).

**Alternate response.** Alternate response questions are a subset of multiple choice questions in that they only offer two choices (e.g., yes-no, male-female, up-down). They are used in a survey to disaggregate responses or to filter future questions in terms of those that will or will not be displayed (see Figure 1).
What is your direct supervisor’s gender?

- female
- male

*Figure 1. An example of an alternate response question.*

**Multiple choice.** There are two types of multiple-choice questions. The first only allows one choice from three or more options. The second allows the participant to select as many options as apply. Regardless of the response options, it is critical that all possible options are used or that the final choice is “other” with an option for the participant to state what that choice is (see Figure 2).

![Multiple choice options](image)

**Figure 2. An example of a multiple choice question.**

**Matrix.** When several multiple-choice questions have the same options (e.g., dislike, neither, like), the questions can be rearranged into a matrix grid with the options placed horizontally at the top and the questions vertically along the side. The participant will still select an option, but the participant can answer questions more quickly and in a more condensed space. You can use the “other” option for these questions but is not recommended because it complicates the analysis (see Figure 3).
Figure 3. An example of a matrix question.

Slider. A slider question asks the respondent to rate the question on a specific scale (see Figure 4). The scale is a bar, buttons, or symbols. There should be anchors on the scale to help the respondent gauge their response. That is, you should not just list ratings of 1–5, but state what each number represents or at least what the first, middle, and last term represent. You should also make a conscious choice of having an even or odd number of ratings; the difference being the option to be in the middle (e.g., a 2 on a 3-point scale) or having to choose one side over another. Use these with care on paper and pencil surveys, as respondents will mark their choice between ratings confounding the analysis.

Figure 4. An example of a slider question.
**Rank order.** This question provides several options and asks the person selecting to order the choices from most to least favorite or vice versa (see Figure 5). The online questions typically have a drag and drop option where the respondent uses the computer cursor to drag an option to its desired rank. Paper and pencil surveys will provide a space for the rank to be entered. Again, a problem may occur with paper and pencil surveys if the respondent thinks that two items are equal and gives each the same rating. Online surveys force a choice of one being rated higher than the other.

![Figure 5. An example of a rank order question.](image)

**Constant sum.** These questions typically ask the participant to determine what part of the whole each option represents. Most often, it uses percent as the total (see Figure 6). On paper and pencil tests, participants may not add the sum correctly.
**Open response.** The open-response question allows the participant to provide his or her own answer to a question. This may be as simple as digits (e.g., How long have you worked in your position?), a short sentence, or a longer essay. In a survey, you use these questions to gain a greater understanding of why a person responded in the way that he or she did. You may also use them at the end of a survey to allow the respondent to provide information they want to give but you have not asked about. For example asking, “What else would you like to tell us about (topic) that we have not asked?” mimics an interview question in that it allows for a more open response but does not allow for follow-up questions to clarify (see Figure 7).
There are two cautions in using open-response questions. First, responses can be somewhat frustrating as people feel obligated to answer them, so they will put in some form of “nothing” as a response. This is more of a nuisance issue when analyzing. Second, they complicate the survey in that it may take some time to answer and analyze the response. People do not always write clearly and it may be difficult to understand what they are trying to say. Both issues complicate the analysis, but the greater understanding provided by these responses is invaluable. I urge you to use caution in how many of these questions are on a survey as they increase the time and effort to respond and analyze.

Response Choices

The key to good survey question is the potential responses (McMain & Jerabek, 2004). The responses should cover the entire array of potential answers survey participants may have. If this is the case, analysis is simplified and one can discern patterns and trends based on responses. However, you need observe key features in the writing of responses for survey questions.

It is important to avoid all-inclusive responses such as “every,” “never,” and “always” as a single counter case prevents the selection of these options. It is also important to include the “opt out” responses as needed. This response includes options such as, “I don’t know,” “I don’t remember,” or “not applicable.” These responses allow the applicant to be able to opt out when the other responses do not fit or the responder honestly does not know.

When possible the responses should include all plausible answers (e.g., a; b; c; a & b; a & c; b & c; abc). However, when this is not possible, the responses should include an open-ended response titled “Other: please specify.” Having this option allows for a response when there are too many possible responses or when all potential responses are unknown. In the case of too
many responses, list the most dominant responses and identify the less dominant responses using the “Other” category.

Keep the responses as simple and clear as possible. When feasible keep the responses the same length and avoid overlap of phrases. Doing so helps to prevent response bias where a respondent selects a choice based on its length and not on its content. When you use similar responses on different questions, keep the order of the responses consistent on each question. For example, if the responses are no, maybe, yes, then this order should be consistent on all these types of questions. There should also be a logical order to the presentation of responses (e.g., alphabetical, numerical, low to high) unless there is a logical reason to break this pattern (e.g., listing the highest level of education), but even then the responses should have a logical progression. It is also good to provide a response format that is consistent throughout the survey. For example, it would be confusing to have responses vertical on one question and horizontal on the next. It is always good to have plenty of white space (no question or responses) to help improve the survey’s aesthetic quality.

**Demographic Questions**

Demographic questions disaggregate data for comparison among groups (Aleandri & Russo, 2015). Take care on the type and amount of demographic questions. Each demographic question increases the length of the survey. The shorter the survey the greater the response rate will be. Multiple demographic questions may be connected to identify a respondent. In this case, take care needs and provide assurances guaranteeing that respondent confidentiality is preserved. While demographic questions vary with each survey, typical demographic questions focus on gender, status (freshman or 1 year, sophomore or 2 years, junior or 3 years, senior or 4 years, super senior or 5+ years, master’s, doctorate, faculty), college or program, and major. However,
some demographic questions can provide multiple sources. For example, if you ask for the student’s major, the question asking for the student’s college can be eliminated as the major will identify the college.

The final item to consider for demographic questions is its location—first or last of the survey. While there is no definitive location, some things to consider include whether the response to the question is more important than being able to disaggregate the responses. The length of the survey will also affect responses as participants may tire of answering questions. The nature of the demographic questions may also cause respondents to stop answering questions.

**Format**

Each survey should begin with a statement indicating the purpose of the survey and seek the implied consent. This question should be a forced-choice question. That is, the respondent must answer the question before proceeding to the next. The information included must be transparent and concise. It should explain the purpose for the survey, the importance of the survey, and why the respondent’s participation is important.

The format of the survey is as important as the questions. If a survey feels cluttered and disorganized, it becomes less appealing and those who start may be less inclined to finish. There should be a good amount of open space to prevent a cluttered or compacted feeling. There should be a logical progression of the questions with each section clearly labeled. Depending on the survey software being used, the different questions may be blocked off or have page breaks so no questions are missed by the respondent not scrolling down. Use care in numbering questions. In some cases, the question will inform progression through the survey. In others instances it will
cause confusion, especially if a participant’s response allows them to skip questions (Borg & Gall, 1989; Irwin & Stafford, 2016).

If the survey is somewhat lengthy, using a survey question map will provide an overall plan of what questions are asked and when. This practice will provide a logical order where disaggregating questions are asked first (e.g., Have you ever used a public computer in the library?). Typically, ask general questions first with increasing specificity thereafter. This method allows the general questions to display or eliminate future questions.

**Interviews and Focus Groups**

While there are differences between conducting an interview and a focus group, there is significant overlap that allows us to discuss them together. We focus on sampling, the Utility Triangle, questions, and interview methods. The section finishes with discussion on the key differences when conducting a focus group.

**Sampling**

Sampling procedures will use the same selection methods as outlined in the survey section, however there are three key differences. First, you want to determine just how big of a focus group you want or how many people you need to interview. Both methods are designed for the specific purpose of a deeper examination of key issues. For this reason, you may limit focus groups to 10 people each but hold multiple focus groups, thus increasing your sample size. Additionally, you will need to decide if you want the group to be homogeneous or heterogeneous (Fern, 2001). For example, in a recent security study, we kept all focus groups homogeneous because we wanted to focus on the similarity of experiences of people in each group. With heterogeneous groupings, we compare and contrast to the experiences of multiple groups.
The second difference focuses on the total number of participants interviewed individually or as part of a focus group. As you are delving deeper into the participant’s experience, you will not be able to use as many participants. My experience suggests that when you start hearing the same experiences from one group to another or from one interview to another, then you have reached a saturation point and no further focus groups or interviews are needed. However, the number of focus groups may also be limited by time, money, and participants’ willingness to participate.

The third difference is how we choose interview and focus group participants. Typically, at the end of the survey we ask respondents to volunteer to participate in a focus group or an interview. A participant may volunteer for both, but we will only allow participation in one or the other, as the questions for both interviews and focus groups are often similar. From this pool of volunteers, we invite participants. This process allows us to examine survey results and conclude where we need greater understanding. However, we have also used the reverse process where we randomly invited participation in focus groups or interviews. Data from these experiences allowed us to craft stronger surveys and usability studies.

Utility Triangle

The Utility Triangle refers to the three key components of any interview or focus group. They are the time available, the number of questions, and interviewees. Each has a specific effect on the other two.

**Time.** The time refers to how much time you need for conducting the interview and analyzing the data. As a guideline, most one-on-one interviews should be conducted within 20 minutes and most focus groups should be done within an hour. There are exceptions to these rules, but time is important from the perspective of both the interviewee and the interviewer. The
interviewee has given his or her valuable time to participate. If a specific time limit is given, the interviewer should remain within that time, unless the participant indicates that he or she wants to extend it, as may occur on a topic that is of great importance to him or her. From the interviewer perspective, the time limit becomes important if several interviews are scheduled back-to-back. If this is the case, always provide a buffer to allow one interviewee extra time, if needed, and time to exit before the next interviewee arrives.

The time also extends into the analysis of the interview. Listening to the interview will take the same time as the interview itself. Transcribing the interview allows for responses to be de-identified and specific sections to be reviewed. While there is software that assists in transcribing and one becomes more effective as they transcribe more, a rate of three or four minutes to transcribe each minute of the interview is common. You also need to plan for time to read the transcript while listening to the interview or focus group to verify accuracy. Also, use time stamps in the transcription so the evaluator can go directly to the recording, if needed. Finally, insert correct grammar into the transcription. This process takes some time, as people do not often talk grammatically correct. Note any additions to help clarify the transcription, typically with brackets. When the interview or focus group is video recorded, it is also good to note any nonverbal actions that add to the content.

**Number of questions.** In interviews and focus groups questions are more open-ended so it is a bit of a guess regarding how much time someone will take in the response. Again, much of the length of the response will determine how many questions you can ask. Be prepared to omit questions if the interview is running long. It is also good to review all the questions you are planning to ask, as interviewees will often provide the response to a later question when answering an earlier question. This removes the need to ask the later question. It is also
important to ask secondary questions to get greater understanding. Remember that the power of any interview is the opportunity to ask probing questions that require a more complicated response, resulting in a greater understanding.

**Interviewees.** Not all interviewees are equal. Because of their experience or expertise, some interviewees have greater importance to your assessment and so allow more time for those interviews. There are also interviewees who will talk more. Consider the time needed for this variation in responses. Finally, specific to focus groups, you need more time for larger groups. Our experience indicates that you can ask about 5–6 questions for groups of 8–12 people within an hour. This process allows each person to be able to respond individually, but it also allows for a bit of a response frenzy, where the comment of one participant encourages others to respond with similar or different experiences.

Each of these key components causes the other to increase or decrease in response to any changes. For example, asking more questions will increase the time. Time limits for the interview will influence the number of interviewees.

**Questions**

The primary purpose of interviews and focus groups is to delve deeper into the experience of interviewees. They provide greater insights into why participants did what they did or feel like they do. If a question begins with a verb (e.g., is, are, will, do, have), there is the option for a brief or one-word answer. For example, “Have you ever seen a patron struggling to find a book?” only requires a simple answer of yes or no. More open-ended questions (beginning with Who, What, Where, When, Why, and How) allow for a broader response. For example, “What things have you seen patrons do when struggling to find a book?” is the same question, but it asks the interviewee to provide specific instances and a broader response.
The interviewer should also be cautious about leading or biasing questions. This occurs when they need to provide a context for the question. Give care to provide a neutral context or ask the question in a neutral way. Also, avoid complex language associated with specific organizations. This language may include slang terms, acronyms, or technical language not understood by the patron. For example, reference desks may need to be described as desks where help is given to patrons. Circulation may be referred to as the checkout desk. Explain confusing or specific terms to interviewees. It is always a good practice to ask the questions to someone not associated with the library prior to the interview to determine what needs to be changed or explained.

When interviewing, have a list of the questions, but do not read them. Know the questions well enough to determine if a question was answered in an earlier response. Doing so will help those being interviewed feel like they are part of a conversation rather than a question and answer session. The conversation tone helps prompt better answers. It is always good to use secondary questions to gain further understanding. Some examples include, “Tell me more about [topic],” “Where else has this happened?” and “What is an example of that?” In each case, the secondary question provides a more specific response with deeper insights.

**Interview Methods**

This section refers to how the interview and focus group are conducted (Allison & Kaye, 2005; Bernard, 2006; Borg & Gall, 1989; Fern, 2001). While each interview will begin with a consent form, the interviewer can set the tone by taking a minute or two to “visit” with the interviewee. This informal visit may include asking about his or her job or status at the university (e.g., year at the university, program of study). The process helps the interviewer better understand the interviewee’s background. It also provides the interviewee an opportunity to start
talking about an easy, favorite subject—their own interest! It helps put the interviewee at ease and break the tension of the first question. It is also important for the interviewee to feel comfortable. One-on-one interviews will often be in the interviewee’s office or a friendly, familiar place. Focus groups should also provide a friendly setting. Seating should be comfortable, with good lighting. There should be a comfortable space between participants.

When the interviewer starts the questioning, he or she should be comfortable with silence. Often those asking the questions feel awkward if more than 5 to 10 seconds elapse without anyone saying anything. This is OK! The interviewee may need time to think about their response. It is also important that the interviewer be as succinct and clear as possible. You are not conducting the interview to hear your own voice but, rather, that of the participant. Ask the questions and let the participant respond. You should also have active listening posture and provide nonverbal cues. Nods and simple encouraging comments can also facilitate responses. If you need to make notes, do so quickly so you can return to eye contact with whomever is talking.

Finally, unless there is a specific reason, every interview should be recorded (Borg & Gall, 1989; Matthews, 2007). A one-on-one interview may be an audio or visual recording. Focus groups should always be video recorded to assist those transcribing see who made the comment. Video recording also allows the transcriber to see nonverbal communication and describe it as part of the interview. The recording tool should be unobtrusive to the interview. The interviewer should be off camera so the focus is on the interviewee. As mentioned earlier, the interviewer may take notes but these should be brief and not interrupt the flow of the conversation. Often notes will be of comments that the interviewer wants to explore further. The intent is to have an accurate record of what was said, how it was said, and any other communications that inform the responses.
Focus Group Specific

Focus groups have several advantages and cautions (Matthews, 2007). The biggest advantage is to gain several people’s experience in a shorter period. If you conduct 10-minute interviews for each interviewee and you put 10–12 people in a 60-minute focus group to cover the same questions, you have a time saving of 40–60 minutes. Furthermore, responses from one person may prompt the memory of others in the group with similar or different experiences. It can also allow you to play the experience of one interviewee off the others. Doing so can provide richer discussions and responses.

However, with these advantages come cautions. In a one-on-one interview, the responses are confidential with only two people in the room. In a focus group, everyone gets to hear the responses of others. There needs to be more trust with all who are present. The interviewer can facilitate this by asking those present to keep all questions and responses confidential and not discuss what others said outside of the focus group room. There may also be negative effects from others. For example, at the onset of a focus group about library security, one participant stated, “I just want to say that I think security does a wonderful job and anybody who thinks different will have a problem with me!” You can obviously see how such a statement would influence the discussion. With the possibility of this happening, the interviewer should also make it clear at the beginning that those participating may have different experiences and opinions. You should set the tone for those participating by encouraging each to express their experiences and to respect the experiences of those within the group.

Several types of personalities will be at play within a focus group (Fern, 2001). Optimally, there is a balance between all present that allows for open responses and relatively equal time. However, if this does not happen the interviewer may need to curtail the comments
of one person dominating the conversation or encourage another participant to share their experience. Do this by asking participants if they have had similar experiences or if they could provide specific experiences that support or refute a comment made by another. While this may present the opportunity for conflict, the interviewer must balance the comments with the “agree to disagree” or “respecting other’s experiences” comments.

**Final Thoughts**

The survey is truly the “work horse” of assessment. They are easy to administer and usually quite easy to analyze. Written well they provide a host of information for those seeking feedback. However, their construction is critical to getting the information needed. It is always good to have someone not associated with the survey read and take it prior to its administration to identify areas that need improvement. It is also important to be able to know when a survey is and is not the assessment tool to use.

As with most anything, good practice will improve your ability. Take the time to explore the options on the survey tool and focus groups you use. Prior to conducting an interview or a focus group, practice with a friendly, familiar group to gain experience and feedback. If you know someone with expertise in conducting interviews or focus groups, visit with them for advice or observe them when they conduct an interview or focus group. Once you have completed the interview or focus group, review the recording for the data but also do a meta-evaluation of how you asked questions and what you did. You may squirm as you do it, but remember no success is final and no flaw is fatal. Continuing to learn from others helps you develop your skill level and expertise with the tools you use.
References


(accessed 1 April 2017).
Appendix: Example Template for Informed Consent

This consent form is an example. Modify it to fit the specific assessment. The underlined and italicized terms should be replace with appropriate terms. When you do not need an item in the consent form, delete it. For example, if video recording is not used, delete the last page. I recommend that you indicate the assessment in the title (Consent to Be a Research Subject).

Consent to Be a Research Subject

Introduction
This research study is being conducted by [insert name of principal investigator and position] at [insert institution] to determine [insert title of study or brief description of purpose of the research]. You were invited to participate because [insert reason the person was chosen].

Procedures
If you agree to participate in this research study, the following will occur:

- You will be [choose one of the following or insert appropriate activity: interviewed individually, interviewed as part of a focus group, observed or specify other activity], for approximately [insert length of time here] about your experience with [insert organization of entity here].
- The [insert activity] will be [choose audio, video, or insert recording method] recorded to ensure accuracy.
- The [insert activity] will take place in [insert specific location] from [insert time of day and, if possible, date].
- The researcher may contact you later to clarify your answers for approximately [insert time here] minutes.
- Total time commitment will be approximately [insert total expected time here] minutes.

Risks/Discomforts
Risks would be limited to discussing uncomfortable experiences with [insert organization or entity here] and/or speaking about your experience in front of a group [only add for focus groups or group interviews; otherwise delete]. Participants may refrain from the discussion or withdraw from the [insert data collection method].

Benefits
There is no direct benefit to participants other than the opportunity for the [insert organization or entity] to use the information to improve services.

Confidentiality
[Leave in for focus groups or group interviews only; otherwise delete] Also, because focus groups include discussion of personal opinions, extra measures will be taken to protect each participant’s privacy. The researcher will begin the focus group by asking the participants to agree to the importance of keeping information discussed in the focus group confidential. [He or
she] will then ask each participant to verbally agree to keep everything discussed in the room confidential and will remind them at the end of the group not to discuss the material outside. Only the researcher[s] will have access to the data collected. Any tapes and transcripts of the [interview, focus group, observation, other activity] will be destroyed five years after the data collection, analysis, and dissemination of findings.

Compensation
All participants are given [insert type of compensation – if no compensation is given then replace statement with “No compensation is given.”] as compensation for participation.

Participation
Participation in this research study is voluntary. You have the right to withdraw at any time or refuse to participate entirely without jeopardy to your class status, grade, or standing with the university.

Questions about the Research
If you have questions regarding this study, you may contact [insert the name of principal investigator or contact person along with contact information—phone number or email] for further information.

Questions about Your Rights as Research Participants
If you have questions regarding your rights as a research participant, contact [insert institution’s governing body over human subject research].

Statement of Consent
I have read, understood, and received a copy of the above consent and desire of my own free will to participate in this study.

Name (Printed): __________________________ Signature: __________________________ Date:__________
Video Release Form

As part of this project, I will be making video recordings of you during your participation in the research. Please indicate what uses of this video you are willing to permit by initialing next to the uses you agree to and signing at the end. This choice is completely up to you. I will only use the video in the ways that you agree to. In any use of the video, you will not be identified by name.

_____ Video can be studied by the research team for use in the research project.
_____ Video can be used for scientific publications.
_____ Video can be shown at scientific conferences or meetings.
_____ Video can be shown in classrooms to (elementary/middle/high school/college) students.
_____ Video can be shown in public presentations to nonscientific groups.
_____ Video can be used on television or the audio portion can be used on radio.
_____ Video can be posted to a website (i.e., YouTube).

I have read the above descriptions and give my express written consent for the use of the video as indicated by my initials above.

Name (Printed): ___________________________ Date: ___________________

Signature: _______________________________
Inventory and Survey of Archival Collections in the Episcopal Diocese of Chicago:
First Steps in Developing a Plan and Training Materials

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ABSTRACT

This paper reports the results of a survey and inventory of the archival collections of congregations of the Episcopal Diocese of Chicago. The study replicates the 1975 survey conducted by Roderic B. Dibbert, then Historiographer of the Diocese, to identify the existence and location of valuable historical records, encourage improvement in the keeping of current records and enable the Historiographer to assist local churches and agencies in the creation and preservation of church records and to increase of the heritage of the parish and Diocese as revealed in historic documents. The paper tests whether Dibbert’s survey is still effective as an information-gathering instrument in 2017. The paper also reports the challenges of conducting survey research within non-profit institutions that may not be familiar with conducting surveys. The response rate and methodology of the surveys are compared. Follow-up communications and visits to parishes are reported.

The drivers for this study were

- The need for an accurate and up-to-date list of archival collections and personnel responsible for maintaining the collections,
- The need to identify collections that should be transferred from parishes to the Diocesan Archives,
- The need to learn if personnel responsible for collections need guidance in setting up and maintaining archival collections,
- The need to develop and share simple “how to do” document about establishing and maintaining collections.
INTRODUCTION

Preservation of the historical record and providing equitable access to information are core values commonly accepted by librarians, archivists and information specialists throughout the world. Many libraries, museums and organizations contain archives documenting and preserving their history and the history of their parent institutions. This paper reports the results of a survey to identify collections, staffing, and institutional records management programs at churches in the Episcopal Diocese of Chicago.

The last study of the Diocesan archival collections was conducted in 1975. Since then there have been seven Historiographers in charge of the Diocesan Archives. Clergy and congregations in the parishes have also experienced turn-over; many are not aware of the parish’s responsibility to establish and maintain historical records. In many ways, this is similar to the challenges that academic archives face in trying to establish and enforce records retention schedules for university departments and offices in flux.

BACKGROUND AND CONTEXT

Archives

Archival collections document and are intertwined with culture. An archives represents an accumulation of historical records or the physical place they are located. The Society of American Archivists (2017) defines archives as collections of “materials created or received by a person, family or organization, public or private, in the conduct of their affairs and preserved because of the enduring value of the information they contain as evidence of the functions and responsibilities of their creator, especially those materials maintained using the principles of provenance, original order, and collective control: permanent records.”

There is a large body of literature tracing the origin of archives. Posner (1972) provides an in-depth analysis of archives in the ancient world beginning with early examples of clay tablets from the third and second millennia B.C. in the ancient Near East and on writing tablets or papyrus in the empires of ancient Greece and Rome.

Hunter (2003) traces the beginning of modern archives to establishment of the General Archive of Simancas, Spain, in 1543. The principles and practices of archival management used in Europe and North America were derived from those established in France as a by-product of the French Revolution (Hunter, 2003; Panitch, 1996; Posner, 1940). Although the French National Archives was created in 1790 during the Revolution, national archives were late to develop in England (1838) and the United States (1934). In addition to national archives, other types include academic, business, government, church and other non-profit organizations.

Archives of the Episcopal Diocese of Chicago
The Archives of the Diocese of Chicago holds materials about the origins of the Protestant Episcopal Church (now the Episcopal Church) in the American Midwest from the start of the 19th century. Organized in 1835 as the Episcopal Diocese of Illinois (and comprising the entire state of Illinois) and reorganized as the Diocese of Chicago in 1877, the Diocese established its Archives under the direction of Registrar Samuel Chase in 1871. The Archives houses parish records for churches and missions in Illinois since the 1830s, especially those that have closed. Materials include records of baptisms, confirmation, marriage, death; parochial reports; vestry minutes, correspondence; publications; biographical material; historical material; photographs and architectural records.

Like other dioceses and denominations, the Diocese of Chicago has seen a decline in membership and closing of churches. When churches close, their archives and other records need to be transferred to the Archives of the Diocese. In December 2016 a member of the Archives and Records Management Committee asked whether the Committee had a plan for gathering these records or even a current list of churches in the Diocese. This led to the Committee’s searching for such a list and for records of past attempts to inventory archives in the Diocese.

A search of the Archives revealed a 1975 survey conducted by Roderic B. Dibbert, then Historiographer of the Diocese, “to identify the existence and location of valuable historical records, encourage improvement in the keeping of current records and enable the Historiographer to assist local churches and agencies in the creation and preservation of church records and increase of the heritage of the parish and Diocese as revealed in historic documents” (Dibbert, 1975). The Committee decided to replicate Dibbert’s survey in order to

- Identify the state of archival records in churches,
- Identify individuals responsible for establishing and maintaining archival records,
- Identify churches “in distress” and arrange for transfer of their records to the Diocesan Archives,
- Develop a simple workbook or guidelines for the Historiographer to share with parishes in need of training,
- Develop a training program.

**DESIGN, METHODOLOGY AND APPROACH**

**Dibbert’s 1975 Survey**

In June 1975 Roderic Dibbert, then Historiographer of the Diocese of Chicago, sent a “Historical Survey Kit” to the clergy in charge of the 150 churches in the Diocese. His kit included a definition of historical data and records surveys and survey forms for a
Parish History Summary and Inventory of Historical Items (Dibbert, 1975). The Inventory of Historical Items asked for details on the following:

- Canonical Papers,
- Photographs,
- Parish Publications,
- Correspondence.

Dibbert reported that 40 (27%) of the parishes surveyed had completed the Inventory by December 1975 (Dibbert, 1975) and 53 (35%) by October 1976 (Dibbert, 1976). Neither a summary of the results nor copies of the completed forms have been found in the Diocesan Archives.

The authors used Dibbert’s Inventory of Historical Items to create an 11-question survey (see Appendix). They revised the questions for electronic distribution. In April 2017 they consulted with Diocesan staff about obtaining an e-mail list of parish contacts and in distributing the survey. The authors intended to build an e-mail list of up-to-date contacts for the parishes and to create and distribute the survey in SurveyMonkey. They proposed the following timetable and process:

- Week 1. E-mail announcement of forthcoming survey,
- Week 1, 1-2 days later. E-mail with link to survey,
- Week 2. Follow-up reminder,
- Week 3. 2nd follow-up reminder.

The Diocesan staff expressed a preference for using WuFoo software rather than SurveyMonkey and for handling distribution of the survey via their internal e-mail list and for posting the follow-up reminders in Leadership News (an electronic newsletter sent to clergy and posted on the Diocese of Chicago web site) rather than sending email reminders to clergy in charge of parishes.

The authors agreed to the suggested process and revised timetable:

- Week of May 15: Diocesan staff sends e-mail notice to rectors/vicars/priests in charge of the 127 churches in the Diocese informing them of the survey and providing the link.

- Week of May 24: Diocesan staff posts reminder with survey link in Leadership News with deadline (June 23).

- Week of June 7: Diocesan staff posts second reminder with link in Leadership News with deadline (June 23)

- Week of June 21: final reminder in Leadership News with deadline (June 23).

Initial Results and Revision of Methodology

The first survey results, shared with the authors on June 5, 2017, were disappointing. Only eight of the 127 parishes had responded. When they looked for reasons for the low
response rate, the authors discovered that the Diocesan staff had decided to omit the first step (sending the e-mail notice to rectors/vicars/priests in charge informing them of the survey and providing the link). The only mention of the survey was the reminder in Leadership News.

The authors looked for ways to salvage the survey. They proposed that the deadline for response be extended and that members of the Archives and Records Management committee phone the 119 parishes that had not responded and share with them the link to the survey by directing them to the link posted in the Leadership News reminder. An arduous and time-consuming task. They made 41 calls. They shared their concern about the distribution of the survey with Diocesan staff who on July 5, 2017, sent a slight revision of the original e-mail notice of and link to the survey to clergy in charge of those parishes that had not yet responded to the survey.

As of July 18, 2017, 41 (32%) of parishes surveyed have responded. A discussion of the responses follows.

SURVEY RESULTS

Staffing
Only 44% of the responding churches have a congregational archivist or historian.

Scope of collections
All the responding churches have collections of some kind. All (100%) have parish registries and annual reports; most have sacramental records (95%), vestry minutes (95%), bylaws (78%), deeds (73%), and articles of incorporation (68%). Surprisingly, only 66% have copies of annual audits.

All or most of the parishes report that their archives contain photographs (90%) and building plans (83%) and parish publications.

Housing of Archival Collections.
Few of the parishes report that their archives are stored under ideal conditions. Only 58% report that archival collections are stored in a secure and environmentally sound area.

CHALLENGES

Challenges encountered in conducting the study include

- Lack of continuity at the Diocesan Archives and in the parishes. There have been seven historiographers in charge of the Archives since the 1975 survey was conducted. Personnel responsible for maintaining parish archives have also turned over.
- Lack of documentation in the Diocesan Archive regarding the current state of parish archival holdings.
- All-volunteer staff responsible for archival collections at both the Diocesan Archives and individual parishes. Wide variation in knowledge, skills and experience.
CONCLUSIONS

Although there were challenges in communications and distribution of the survey, the study showed that Dibbert’s survey could be replicated. The survey did fulfill its purpose to

- Identify the state of archival records in churches,
- Identify individuals responsible for establishing and maintaining archival records,
- Identify churches “in distress” and arrange for transfer of their records to the Diocesan Archives,
- Identify training needs in order to develop a simple workbook or guidelines for the Historiographer to share with parishes in need of training.

The survey was intended as the first step in developing an action plan for the Historiographer and the Archives and Records Management Committee. Work has already begun of the next steps: contacting churches that did not respond to the survey, developing a timetable and plan for transferring at-risk collections to the Diocesan Archives and creating guidelines and training materials.

Guidelines for creating and maintaining archives are posted on the Archives web page (https://www.episcopalchicago.org/our-diocese/diocesan-archives). Next steps include a training program to assist congregations in maintaining their archives.

This paper reports the data from one special library (a religious archive). The results of the study of the Diocese of Chicago Archives may or may not be generalizable to all religious archives or special libraries.

Preservation of historical records and providing access to information are universal core values for librarians and archivists. This paper provides a case study of the experience of one religious archives in identifying collections of historical records and the training needs of those responsible for the collections. It provides guidance for other archives in inventoring collections and developing plans and training materials. Other Episcopal diocesan archives and similar institutions may benefit from replicating the survey.

ACKNOWLEDGEMENT
Thanks to the staff of the Episcopal Diocese of Chicago for help with distributing the survey. Thanks to Archives and Records Management Committee for help and encouragement in conducting the study. Special thanks to Betty Hickman for suggesting the study.

REFERENCES


APPENDIX

EPISCOPAL DIOCESE OF CHICAGO SURVEY

This study is being conducted by the Archives and Records Management Committee and the Historiographer of the Episcopal Diocese of Chicago to identify the existence and location of valuable historical records, encourage improvement in the keeping of current records, and enable the Historiographer to assist local churches and agencies in the creation and preservation of church records.
The study replicates the 1975 survey conducted by Roderic B. Dibbert, then Historiographer of the Diocese. The aims of the 2017 replication of Dibbert’s survey and inventory are to

- Identify the state of archival records in congregations and agencies,
- Identify individuals responsible for establishing and maintaining archival records,
- Build a community of those devoted to preserving the records.

Please ask the most appropriate staff member to fill out this survey and return it to us by July 7. It will take approximately 15 to 20 minutes to complete.

1. Name of Church

2. Address

3. Do you have a congregational archivist or historian?
   a. Yes – 44% of the respondents
   b. No – 56%

4. Do you have Canonical Papers? Please check all that apply.
   a. Registries – 100%
      i. Please list years. Can be a range or estimate.
   b. Sacramental Records – 95%
      i. Please list years. Can be a range or estimate.
   c. Articles of incorporation – 68%
   d. Bylaws – 78%
   e. Deeds – 73%
   f. Instruments of Donation – 46%
   g. Annual Reports – 100%
   h. Annual Audits – 66%
      i. Please list years. Can be a range or estimate.
   i. Vestry Minutes – 95%
      i. Please list years. Can be a range or estimate
   j. Other (please specify)

5. Does your archive include images? Please check all that apply.
   a. Photographs – 90%
   b. Audio/visual recordings – 44%
   c. Building plans – 83%
   d. Plaques, chalices -68%
   e. Other (please specify)

6. Does your archive include parish publications? Please check all that apply.
a. Service Bulletins – 88%
b. Parish Directories – 83%
c. Brochures -63%
d. Newsletters – 88%
e. Other (please specify)

7. Does it include Clergy Correspondence?
   a. Yes – 61%
   b. No – 39%

8. Where are your congregational records stored?
   a. In a secure area (e.g., fireproof, theft proof) - 58%
   b. In an area with environmental controls
   c. Other (please specify) - 42%

9. Comments?

10. Please include any additional comments about your archive.

11. Name and contact information for follow-up questions.
Keeping up quality Information Services during transformation
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Abstract
We took our cue from the 14th Annual Library Symposium, 3-4 November 2016 where the theme was: Shaping the academic library of the future: adapt, empower, partner, engage. We realise that the “#FeesMustFall”-movement is reshaping the higher education landscape in South Africa and we need to adapt our processes, empower our students and staff, partner with all stakeholders and engage in discourse on issues that determine the fate of academic libraries.

There are external factors of which the library has no control over, such as “#FeesMustFall". The ensuing chaos or uncertainty is also influencing the service delivery of academic libraries and in particular the performance assessment of service delivery staff. Therefore, we need to explore creative and innovative ways to assess staff performance. This study is by no means comprehensive and the purpose is to start the conversation during this time of transformation.

Introduction
Research on performance measures for academic library staff and in particular, information services staff have been done in recent years. We should consider how to adapt, change or totally reinvent assessment indicators when regular norms no longer apply. Swilling (2016) see this process of transformation as if we are “caught between an old world that is dying and a new world that is trying to be born.”

Academic libraries are not strangers to change or transformation. Trends in higher education, such as economy, politics, environment, development in information- and teaching technologies, end-user need and budget constrains necessitated academic libraries to adapt (Seeman, 2015; Hichert, 2016; Warraich and Ameen, 2017). This leads to the fact that we need to be flexible in our thinking about the assessment of staff performance and take our staff with us on the journey of transformation.

There are external factors of which libraries have little or no control over, such as construction, natural disasters and political unrest. Unplanned disruptions can have negative or positive influences on targets or outcomes of staff performance. A South African example was the 2015 to 2016 student movement, “#FeesMustFall” (Riaz-Mohamed, 2015). This active student movement, requesting a new model for free tertiary education, had a direct impact on the service delivery of university libraries. Some libraries had to limit access to their facilities. These actions compel us to engage in discourse on issues that determine the fate of academic libraries.

The article by Stilwell, Bats and Lor (2016) states that libraries in developing countries have an important role to play in the development and maintenance of a democratic society. They provide
the conditions by which people achieve free access to information and knowledge. Therefore, it is important that academic libraries continue to render quality information service in the face of adversity.

The purpose of an academic library is to contribute to the core business of the university which is teaching, learning and research. The academic libraries in South Africa have always aimed to uphold the educational mission in the universities that they serve. Academic libraries therefore have a potentially important new role to play within the changing higher educational landscape in South Africa. The challenges of the 21st century have altered the way that academic libraries can contribute to teaching, learning and research (Neerputh, 2004). With these changes in mind, it is necessary to establish how South African University Libraries are assessing staff performance during these times of turmoil and drastic change.

The following concepts are clarified from the online Business Dictionary (2017) for this particular study:

**Chaos:** The behaviour of a complex system, where tiny changes in the starting conditions can lead to very large changes over time.

**Turmoil:** A state of great disturbance, confusion, or uncertainty.

**Transformation:** In an organizational context, a process of profound and radical change that orients an organization in a new direction and takes it to an entirely different level of effectiveness.

*Performance assessment and –indicators*

To be able to demonstrate the value of the academic library there is a constant need to measure and quantify activities and performance. Performance assessment enable managers to identify areas of skills development and focus on performance planning (Agyen-Gyasi and Boateng, 2015). According to Kont and Jantson (2013) performance measurement and appraisal have several important functions, including ensuring the service quality and user satisfaction. Other functions and benefits includes better internal communication, development of skills, competency, and professionalism. In addition, to assist with motivation of staff. During times of turmoil uncertainty about expectations and challenges regarding the motivation of staff can occur.

There is a drive towards developing core competencies descriptions for library staff combines this need with the realization that existing expertise is invaluable to the library’s growth. (Smith, Hurd and Schmidt, 2013). Staff needs to realise that they have to be innovative and flexible in order to reach negotiated goals or adapt their goals and renegotiate with management.

A vital factor when considering the effectiveness and performance of library work is whether the employee has sufficient attitude for having his/her job done at all. Secondly, whether he/she is motivated enough, for individual development and improvement, also for increasing his/her work performance. The third factor is whether the employee enjoys necessary working conditions that also embraces work organisation. (Kont and Jantson, 2013). In times of turmoil these factors can get challenged and employees can become depressed, traumatised and demotivated by the unstable working environment. Toyin (2016) found that the quality of job performance of professional librarians can be affected by enormous stress. In this case, occupational stress was researched but a violent or chaotic job environment can possibly also result in job stress and should be taken into consideration.

The most challenging job for a manager is to achieve and maintain the high performance of employees, especially when external unpredicted factors come into play. Managers need to evaluate...
staff performance to ensure that their skills are properly utilized to enhance productivity (Warraich and Ameen, 2017). The question should also be asked what other skills are needed when disaster strikes and staff cannot meet their goals as planned.

Smith, Hurd and Schmidt, 2013 mentioned that the creation of new standards of performance and tying it to the requirement of the development of new skills was a difficult process for the library. It should then be expected that it will not be easy to just adapt performance indicators during times of profound change.

Neerputh, Leach and Hoskins (2006) developed guidelines for performance appraisals of subject librarians at UKZN and for that purpose did a study amongst Kwa-Zulu Natal Academic Libraries to identify what key performance areas, job tasks and competencies were considered important. The most important KPAs identified were:

- Instruction and Teaching
- Reference Services
- Communication
- Management and organisation
- Cataloguing and classification
- Information technology

As a South African study this gives valuable insight into what information services staff deems as their key performance areas. The most important competencies identified were interpersonal skills followed by knowledge of the total information environment. Follow up studies can be done to include other South African academic libraries.

**Survey and findings**

A short survey was conducted at a few public universities. Interviews with staff and managers were structured around six questions. The goal was to determine the level of impact "#FeesMustFall" had on libraries around the country and how staff coped with the ensuing chaos. We wanted to determine if performance targets could be reached and if circumstances were taken into account when performance of information services staff were assessed.

The results varied from campus to campus because protest actions were concentrated at certain institutions. The identified universities have multiple campuses with their own libraries at different geographical locations. With this in mind library services could be re-directed to lesser-effected branch libraries.

**Library Access:** Not all Libraries were closed simultaneously – opening hours depended on the intensity of the protest and the security threat to students and staff at a particular location. Some libraries are more vulnerable and others are fenced in and are therefore more secure. Branch libraries can be situated within faculty buildings and could still function when the main library had to be evacuated.

**Library staff:** Staff were sent home or advised to stay home when a campus was evacuated and academic libraries relied on the decisions from campus management in this regard. Some staff were willing to work from home if they had internet access and were prepared to use their own data to get searches done and attend to e-mails. As most libraries surveyed were completely closed less than a week most staff members were working from their offices when their campus was closed but declared safe - staff were willing to work behind closed doors and retained contact with users via
phone, email and social media. In a few cases meetings were held off-campus and if free wi-fi was available at a venue off-campus it was also utilised.

**Resource Access:** Access to academic libraries thus depended on the safety level and completely closed for short periods of time (2-8 days) in most cases. When the campus was deemed safe limited access was available with access control by security clearance – written motivation through lecturing staff could be needed and the libraries continued to operate behind closed doors. The third level of access was access to all buildings including the libraries with a valid student or staff card and business continued as usual. Some Libraries implemented limited hours and only delivered service from 8-16:30 and cut down on extended hours during weekends – only staying open until 13:00 on Saturdays. During the exams that were postponed and ran into December 2016 libraries offered extended hours and in one instance was open 24/7 to give students the space to study.

Printed information resources and hardware like computers, printers and scanners and physical study space were unavailable during closure but in all instances online sources were used for studies, research and training. Additional training material, such as short videos, were also placed on library subject guides and library web pages to support students. Material were scanned and uploaded to educational platforms and emailed where possible. Computers, printers and scanners outside the libraries (eg. residences, computer labs) were utilised by students. Information services staff attended to queries via telephone, e-mail, ask a librarian and a substantial amount of queries were places on social media and a few librarians made good use of this opportunity to support their patrons.

**Impact on staff:** It is interesting to note that very few complaints for increased leave occurred and staff were willing and able to do their jobs as well as possible. Some were late for work because of intimidation or access control at the entrances. Most were concerned for their safety and in some cases violence or altercations with protesters lead to stress and even trauma. Events did occur where teargas was fired inside the library and students and staff had to be evacuated. It is important to note that in some instances trauma counselling was offered to staff and it had a positive result in their experience of how management handled the matter. Clear communication channels were of utmost importance and university as well as library management communicated with staff and students via SMS, WhatsApp, Facebook and Twitter. One institution mentioned that daily briefing sessions were held throughout the “#FeesMustFall” process and staff were kept informed of changed processes and expectations. Information services staff continued to be motivated and tried to assist all categories of library users as best they could and were able to continue to work on their KPAs. Other staff members had to do projects not related to their job description during times when the students could not come onto campus and it was difficult to keep them motivated.

**Assessment tools:** All academic libraries are using formal assessment tools and the perception is that most of the set KPAs for Information services staff were or could have been affected by the situation created by “#FeesMustFall

- Instruction and teaching could not always be scheduled as needed or planned, but innovative videos were made and placed online together with existing manuals and guides.
- Reference Services could be rendered by phone, email and ask a librarian and social media provided the user had access to internet and a computer smart phone with data. This is not always the case especially with undergraduate students. Interlibrary loans were affected negatively as sources could not be delivered when libraries were closed completely and courier services could not access campuses due to strict access control.
Communication is a key factor and staff kept in touch with each other and their users via email, telephone, ask a librarian, Facebook and updated library subject guides and webpages to inform and support. The daily briefings was also excellent for staff to know what was going on and what is expected of them. When communication was slow, staff were frustrated and uncertain.

Management and organisation was impacted but with evacuation and communication plans in place daily time management and management of workload could be organised. Projects were done to keep staff occupied behind closed doors.

Cataloguing and classification could be done from home if staff had internet access and could continue behind closed doors even when the campus was inaccessible to students. Staff were prepared to work longer hours to work away the backlog when the situation was back to normal.

Information technology support could not always be done onsite, but with remote access assistance could be given as needed.

Performance targets were re-negotiated in most cases and managers had to keep the changed circumstances in mind when assessing staff performance. Rescheduling of events had to be done and in some instances staff were expected to catch up on lost time.

Conclusion

It seems as if information services staff made small changes to adapt to the situation created by “#FeesMustFall”. Managers reported that they had more face time with the staff and they experience better internal communication. Performance assessments were done as usual with targets re-negotiated or pushed regardless of the turmoil. In spite of all set KPA’s that were affected management made no major adaption or radical changes to formal assessments. Most of the staff were surprisingly resilient, loyal and worked together as a team to continue to deliver quality services. There were some initiatives and virtual services were able to survive. Good communication is of the utmost importance to keep staff motivated and functioning and to keep patrons informed about what can be done when the library building is closed. Too many undergraduate students are still reliant on infrastructure provided by academic libraries and could not make full use of the online services provided by Higher Education Institutions during ‘#FeesMustFall”. This discussion needs to continue.
References:


Learning in Informal Library Spaces

The Value for Students

Susan Beatty

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Introduction

This paper presents the results of a study of student perceptions of design features of informal learning spaces in an academic library. The purpose of the study was to determine what relationship exists between the design of learning spaces and student learning behaviours. Inspired by Bennett’s (2015) comments on the need to go beyond the placement of things in libraries to the purposeful design of libraries for learning, this researcher was intent on discovering what students thought about how the features in a newly built library supported their learning. The goal was to identify possible best features which support informal learning to assist in future design-related decision-making. The results of the study show that more research is needed into the effect of space on learning in libraries. It also reveals interesting results on what students think about their own learning and its relationship to library space.

Background

Academic libraries are in a state of change. New spaces are being created for collaborative learning, knowledge creation, and research. The spaces have been deemed successful in most part due to high levels of use by the students. Throughout her career this researcher has noticed that students have consistently come to the library to use it as a place for learning. Spaces can be good, bad or indifferent, but they still keep coming. My constant questions have been what are the learners doing and why are they doing it in the library? An opportunity arose to investigate these questions when the Taylor Family Digital Library (TFDL) opened at the University of Calgary. The University of Calgary is a research institution with a broad range of 4-year undergraduate programs in STEM and AHSS as well as intensive masters and doctoral programs. The TFDL is a modern 21st century academic library which offers a variety of student spaces spread over six floors. From open spaces for lounging to workstations in an open lab setting to quiet study spaces with carrels and tables, there is something for everyone. Students select and use the different spaces for their own purposes. In an observational study (Beatty, 2015) students in the TFDL were observed using the various spaces and participating in a variety of learning activities. Their behaviours were purposeful and intentional. But why they preferred the library was still unclear. To learn more about the students and why they choose to use certain spaces it was necessary to move beyond an observational study to a more direct study based on interviewing students who use the spaces in the TFDL to learn.

Methodology

In 2016, a qualitative study was conducted using a series of semi-structured interviews. The study was funded by a University of Calgary teaching and learning grant. Print and digital posters were posted in the TFDL asking students who learn in the library to volunteer for a one hour interview. Students were offered a gift card as an incentive and in recognition of their time. Students were screened to ensure a good spread of disciplines and that they were active learners in the TFDL. In total, 21 interviews were conducted. Interviews were recorded with permission, transcribed and analysed using NVivo software. Students were asked to comment on their learning activities in the library and where, how and why they chose a particular place in the library to work. They were also shown a series of 15 photographs of various informal learning spaces in the library and asked to comment on how each space might be useful as a learning space. They were asked to comment on the features in the space that supported or would not support learning in their view. While they might comment on the space that they used most frequently, the purpose of discussing the photographs was not to identify a space as good or bad or to talk only about the space that they use, but to prompt the students to consider what it was about a
particular space that might be supportive to any learner as well as to themselves. As per the ethics approval, students were sent the interview questions as well as a copy of the photographs prior to the interview. This allowed for some preparation by the students.

Results

Of the twenty-one students, eleven were female. Twenty participants were undergraduates with eleven in second year or below and nine in third year or above. Three undergraduates had completed a previous degree. They were all regular users of the library. Most made 3-5 visits per week to the library and generally stayed up to three hours at a time, with seven students normally staying more than three hours per visit.

Students were asked to discuss their learning behaviours and preferences. They also discussed the main features that appealed to them in a space where they would be learning. They described themselves as successful learners or at least well on their way to learning to learn. Their learning included a variety of activities such as reading, making notes, writing, conversation with others. They were familiar with the types of spaces in the library and each student generally preferred one location or type of space over others. The determinant for the type of space generally had to do with how they preferred to learn. The most frequently mentioned space features were not surprising in and of themselves. What was surprising was the varying opinions about any one feature or type of space. That is, a feature could be either an incentive to learning or a disincentive depending on the learner or the particular learning goal of the day. Most interestingly, the preferred features had to be in a certain combination for each learner and each learner knew instinctively what that would be.

Space design elements

When the students viewed the photographs their comments ranged from “I would never use this space” to “I know it but I only go there for a particular use” to “that is my space”. The elements that generated the most comment and critique are as follows:

• Sound and lighting: Environmental factors played strongly in the choice of space. Sound was the most frequently mentioned element. The TFDL has three floors where conversation is allowed and three quiet study floors. Students would seek out quiet or noisy floors depending on their preferred environment. Students generally preferred natural lighting, but some made no comment at all on lighting, focussing on other elements more significant to them.

• Distraction: Students either preferred distractions such as a view of the mountains or being able to see what other folks are doing to avoid distraction all together. Negative distractions could be such events as people traffic, reoccurring noise, or smell or even sitting across the table from someone.

• Openness: This element was described as an area not isolated or confined. Again, a space could be too open, with too many distractions and therefore not desirable.

• Alone or together: Students had a strong preference as to whether they would work near others or not. Either they would want to be away from or near others. Those who preferred having others nearby saw it as a way to either have access to those who could assist with their learning if needed. Or, they would simply prefer to be among those whose presence would act as a motivator. Those who preferred to be isolated felt the need to remove themselves from distraction.

• Work space/furnishings: Students need “enough space” to work and organize themselves and their belongings. They know how much space they need and will choose a space accordingly. If a work space is too limited for their needs, they will avoid it.

• Electrical outlets: While this study did not focus on technology some students did comment on the need for outlets. Proximity to an outlet was a possible determinant but not a critical priority. If other elements were in place, the student would prefer their “best space” even if an outlet was not available. They would adjust their work time accordingly.
Value of library learning spaces

While the students were discussing their learning space preferences and their own learning behaviours it became clear that there was a subtext to their discussion. The purpose of this study was not to discuss what students thought about the library in general. However, they would often comment on how and why they viewed the library as a place to learn. There is value in having a physical library in which to learn, according to the students. This value is multi-faceted and based on students viewing themselves as self-directed or intentional learners who see the library as a place where they can best accomplish their learning goals. They see the library as a place where they can accomplish many goals at once, from printing to research to writing and yes, to relaxing and catching up with friends. Multi-functionality is critical to them as it allows them to use their time well. The library is also viewed as having an atmosphere that encourages and supports learning. This unique atmosphere provides students with motivation and encouragement. Students also prefer to take ownership of the space that they use. The concept of space ownership and control has been explored by Zimmerman (1989) and others in research related to self-regulated learning. Self-regulated learners take control of their environment and their learning behaviours in order to achieve successful learning outcomes. The library enables students to adjust their environment to suit their learning preferences which then allows them to achieve their learning goals. Finally, and perhaps most significantly, the students perceive the library as a symbol of success and academic achievement, representing their ultimate goals. Why are these elements of note? It seems that libraries not only need to provide spaces for learning with elements that support learning, but they also need to pay attention to the value that students place on the physical library and reinforce those values as well, so that students will recognize and use the library as a learning place.

Limitations

This is a small study. Students self-selected based on the recruiting poster which called for students who learn in the library to volunteer. While there was screening to capture as broad a demographic sample as possible, there was no attempt to recruit a representative sample. As well, there was no attempt to recruit students who do not use the library spaces and prefer other spaces for their learning. This was a study of informal learning spaces in one academic library. Further investigation of students using other library spaces as well as other informal learning spaces across campus and elsewhere is needed in order to gain a larger understanding of how space design of informal learning spaces affects learning.

Implications

This study identified various elements in space design that should be considered in combination when designing informal learning spaces in a library. It also uncovered the value students place on the physical library as a place of learning. It is an exploratory study. Further research into the relationship between learning preferences/styles/behaviours and space is needed to increase understanding of how and why students use the library for learning and to identify more precisely those combinations of design elements which support informal learning. Most significantly, from this study, it is clear that more conversations need to occur with students about how and why they learn in informal spaces in the library and the value they place on library space.

Outcomes: the need for comfort

A significant outcome of this study was uncovering the concept of comfort and its relationship to learning. Students frequently commented on the need to be comfortable so that they could learn. Upon further exploration it became clear that comfort to them meant physical, emotional and mental comfort that created a feeling of openness and readiness to learn. The elements identified in the study combined for each student in a specific “right way” so that each was ready to learn and to accomplish his or her goals.

Outcomes: design

For the designer who is looking for hints, the most likely best learning space for students is the space that looks like it offers the opportunity for them to be successful learners. They know it when they see it. The purpose and features of the space should be obvious. Make sure there is enough desk space, vary the furniture arrangement and work space size, and allow for
privacy or for space to be with or near others. Have the nature of the space be obvious, for example, make clear that it is a place for quiet learning or a space for conversation. Transitional spaces should be obvious so that there is no boundary crossing or miscommunication about the nature of other spaces. Furnishings should be flexible. The appeal of various spatial elements is unique to each individual but the values underlying the choices are universal. It is not practical to make each space unique, the learner will do that, but it is desirable to consider the learner to make sure you are doing it right.

**Originality and value**

This study focused on student learning in informal spaces in a library. Throughout the study it became apparent that no one had talked to the students previously about the way they learn in the library or what they think about the relationship of space to their learning. It was also apparent that they had never really thought about it themselves. It was a new concept. To them, their choice of learning space was just natural. The results show that there is a need for further conversations and investigations into how students learn, where they learn and why, and how those elements feed into designing informal learning spaces in libraries and elsewhere. As more academic institutions create informal learning spaces in libraries and across campus, they will need to understand the relationship between learning, space and learner in order to create purposeful, comfortable spaces for learning.

**Further reading**


Linking assessment to the strategic plan in academic libraries

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Background
In October 2015 two of the authors, at the request of the third author, presented a session at the Canadian Library Assessment Workshop entitled ‘Linking Assessment to the Library’s Strategic Plan’. In this session they made the case for the importance of including metrics in the strategic planning process and led the participants through several exercises to demonstrate how this could be done. The topic remains of interest to the authors who each have responsibility for, or oversight of, both assessment and strategic planning activities in their libraries and this interest prompted them to conduct further research on the topic. In preparation for the workshop the authors became aware of Bowlby’s article on strategic planning and assessment in member libraries of the Association of Research Libraries (Bowlby, 2011) and they decided to use Bowlby’s approach as a first step in answering their research questions. By conducting a scan of the strategic plans of academic libraries who are members of the Canadian Association of Research Libraries (CARL) the authors hoped to gain further insight into if and how libraries are linking assessment to their strategic directions.

Methods
As an initial step to understand the starting point of the research question, the authors decided to reproduce in part Raynna Bowlby’s “mini-environmental scan of the self-reported planning and assessment activities of academically-based” libraries (Bowlby, 2011) in a Canadian setting. This step, conducted in February 2017, involved scanning academic library websites to identify a specific list of information:

1. Is there an active strategic plan posted on the library website? Where active is defined as having an end date of April 2017 or later.
2. If yes, what years are covered by the strategic plan?
3. How does the library label its strategies (e.g., strategic priorities, themes, etc.)?
4. Do the strategic priorities of the library’s plan explicitly align to the priorities identified in the university’s strategic plan? For example, by using similar terminology or stating that the library plan is informed by the university’s plan.
5. Have metrics been identified for each of the strategic elements of the library’s plan?
6. How does the library label its metrics (e.g., KPIs, measures)?
The second step was to review the top level text of each strategic element listed in the active strategic plans in an effort to identify any similar themes. For example, the Carleton University Library’s strategic plan (Figure 1) identifies four themes and each theme has a list of goals and strategic actions. Our review was limited to the text at the first level, in this case the “theme” description.

![Image](image-url)

*Figure 1. Excerpt of Carleton University Strategic Plan (Carleton University Library, 2013)*

This top level text was reviewed and compared for each of the strategic plans.

The focus in this review was the academic library members of CARL. CARL has 31 members, of which 29 are academic libraries. The spread of the academic library membership throughout Canada breaks down as follows: 8 members in western Canada; 12 in Ontario; 6 in Quebec; and 3 in eastern Canada.

**Preliminary Findings**

The preliminary findings are outlined in Table 1.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Years covered</th>
<th>Label for strategies</th>
<th>Aligned to university strategic priorities</th>
<th>Metrics</th>
<th>Label for metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Carleton University</td>
<td>2013 - 2018</td>
<td>Themes</td>
<td>Yes</td>
<td>Yes</td>
<td>Key performance measures</td>
</tr>
<tr>
<td>2 Concordia University</td>
<td>2016 - 2021</td>
<td>Themes</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>3 Dalhousie University</td>
<td>2015 - 2018</td>
<td>Strategic priorities</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>4 McGill University</td>
<td>2016+</td>
<td>Strategic priorities</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>5 McMaster University</td>
<td>2015 - 2020</td>
<td>Strategic directions</td>
<td>Yes</td>
<td>Yes</td>
<td>Measures</td>
</tr>
<tr>
<td>6 Queen’s University</td>
<td>2016 - 2018</td>
<td>Strategic priorities</td>
<td>Yes</td>
<td>Yes</td>
<td>Measures</td>
</tr>
<tr>
<td>7 Ryerson University</td>
<td>2014 - 2019</td>
<td>Strategic objectives</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>8 Simon Fraser University</td>
<td>2017 - 2021</td>
<td>[no name]</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>9 Université Laval</td>
<td>2013 - 2017</td>
<td>Orientations stratégiques</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>10 Université de Sherbrooke</td>
<td>2015 - 2017</td>
<td>Axes</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>11 Université du Québec à Montréal</td>
<td>2014 - 2018</td>
<td>Orientations stratégiques</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>12 University of Alberta</td>
<td>not published</td>
<td>Priorities</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>13 University of British Columbia</td>
<td>2015 - 2017</td>
<td>Strategic directions</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>14 University of Calgary</td>
<td>2015 - 2017</td>
<td>Strategic directions</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>15 University of Guelph</td>
<td>2012 - 2017</td>
<td>Strategic goals</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>16 University of Ottawa</td>
<td>to 2020</td>
<td>Goals</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>17 University of Regina</td>
<td>2015 - 2020</td>
<td>Strategic priorities</td>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>18 University of Saskatchewan</td>
<td>not published</td>
<td>Core strategies</td>
<td>Yes</td>
<td>Performance indicators</td>
<td></td>
</tr>
</tbody>
</table>
A total of 29 academic library websites were reviewed and an active strategic plan was identified on 24 (83%) websites.

There was a wide range in the duration of the strategic plans (see Table 2); however, the most common was five years (11 plans). Of the 24 strategic plans, 7 had an end date of 2017.

<table>
<thead>
<tr>
<th>Duration in years (posted on the website)</th>
<th>Number of strategic plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 years</td>
<td>11</td>
</tr>
<tr>
<td>4 years</td>
<td>3</td>
</tr>
<tr>
<td>3 years</td>
<td>1</td>
</tr>
<tr>
<td>2 years</td>
<td>4</td>
</tr>
<tr>
<td>no start date</td>
<td>1</td>
</tr>
<tr>
<td>no end date</td>
<td>2</td>
</tr>
<tr>
<td>no dates published</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>24</td>
</tr>
</tbody>
</table>

The most common nomenclature for the strategies elements of the plan was either “directions” (in French: “orientations stratégiques”) (8) or “priorities” (7). Other terms used included “areas”, “themes”, “pillars”, and “pathways”.

For 5 of the 29 libraries, we did not find a strategic plan available on their library website or the strategic plan was inactive. These were: Brock University, Memorial University of Newfoundland, Université de Montréal, University of Manitoba, and University of New Brunswick.

Five of 24 libraries with active strategic plans identified metrics in their strategic plan. Of these, three university libraries used the term “measures” (McMaster University, Queen’s University) or the more specific “key performance measures” (Carleton University) and two others called these “performance indicators” (University of Saskatchewan, Western University).

Review of Strategic Plan Themes

On review of the top level text of each strategic direction listed in the active strategic plans several similar themes emerged. The two most common themes were student experience (or learning, or success) and research with 96% (23 of 24) and 92% (22 of 24) respectively listing these themes as strategic plan directions (see Table 3).

<table>
<thead>
<tr>
<th>Student Experience / Learning / Success</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>96%</td>
<td>92%</td>
</tr>
<tr>
<td>Teaching and learning: Enhance the transformative power of teaching and learning (Dalhousie University)</td>
<td>Expand upon the library’s role as a hub for research and learning activities (University of Windsor)</td>
</tr>
<tr>
<td>Learning: Facilitate deep learning and creativity for students through the provision of innovative physical and virtual environments, services and learning opportunities (McMaster University)</td>
<td>We will strengthen our relationships with our many stakeholders, and engage dynamically with the community of researchers both locally and abroad. (University of Toronto)</td>
</tr>
</tbody>
</table>
Other common themes worth noting included library staff 63% (15 of 24), engagement 58% (14 of 24), collections 42% (10 of 24), and spaces 33% (8 of 24). These themes included elements such as:

**Library staff**

- **Staff** for 21st century and Strengthen organizational climate (McGill University)
- **Workforce**: Recruit, cultivate and retain a highly-skilled, technologically agile workforce that aspires to excellence and continuous professional development (McMaster University)
- Développer les expertises du personnel et s’assurer de leur mise en valeur auprès de toute la communauté. (Université du Québec à Montréal)
- Support a culture of lifelong learning, skills development and customer service excellence for all library personnel (University of Windsor)

**Engagement**

- The word “community” was used in 9 of 14 entries; the word “engage(ment)” in 7 of 14 entries
- Cultivate purposeful partnerships on campus and beyond and Actively engage with our campus communities (Western University)
- **Partnership** and reputation: Take our place nationally and internationally (Dalhousie University)
- Expand Community Engagement and City Building (Ryerson University)
- **Tell our story** (University of Windsor)

**Collections** (including access to)

- **Collections** at the Heart of Teaching, Learning and Research (Concordia University)
- We will grow our world class collections, expanding our strengths in both traditional and emerging directions in scholarship. (University of Toronto)
Library spaces
- Un espace propice au bouillonnement d’idées (Université Laval)
- We will enhance our physical spaces to facilitate ground-breaking research, teaching and learning. (University of Toronto)
- The words “transform”, “inspired”, “enhance”, and “new” appeared in the elements in this theme.

Notably, three academic libraries identified financial health of the library as a priority:
- “Financial health: Secure appropriate financial resources required to maintain a world-class research library.” (McMaster University)
- “Ensuring Financial Sustainability” (Queens University)
- “Aligned and sustainable library” (Western University)

Description and Comparison of Metrics
Five of the 24 libraries with active strategic plans have included metrics in their strategic plans. For the purposes of this study the authors are using the term ‘metric’ in the sense of performance indicator as defined by International Standard ISO 11620: numerical, symbolic or verbal expression derived from library statistics and data used to characterize the performance of the library (Poll and te Boekhorst, 2007). Applying this definition resulted in the decision to exclude the key performance indicators in Carleton University’s strategic plan from this review because they did not conform to the ISO definition. A closer look at the metrics used at the remaining four institutions revealed that only two institutions had specific measures with data available on their website (McMaster University and University of Saskatchewan) and only one of the two (McMaster University) had included formulas and identified targets for the measures. Two institutions had not yet determined the metrics to be used in their strategic plans and provided sample or suggested metrics that could be used (Queen’s University and Western University).

The authors reviewed the measures of the four libraries using the themes identified during the scan of the top level text outlining strategic directions. It was observed that the metrics closely align with the most common strategic plan themes.

<table>
<thead>
<tr>
<th>Institution</th>
<th>Student Experience</th>
<th>Research</th>
<th>Library Staff</th>
<th>Engagement</th>
<th>Collections</th>
<th>Financial Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>McMaster University</td>
<td>Usage of online modules</td>
<td>Promotion of Research Data Management Services</td>
<td>Retention rates after 1 and 5 years of hiring</td>
<td>Library participation in joint (university or external) grant proposals</td>
<td>Downloads from the Institutional Repository (MacSphere)</td>
<td>Finance: total budget allocation as % of university budget</td>
</tr>
<tr>
<td>Queen’s University</td>
<td>Teaching metrics</td>
<td>Usage and related metrics</td>
<td>Usage and related metrics</td>
<td></td>
<td></td>
<td>Financial stability: Strategies’ progress</td>
</tr>
<tr>
<td>University of Saskatchewan</td>
<td>Library expenditures per FT student</td>
<td>Professional Library Staff per PhD Awarded</td>
<td>Total Library Materials and Library Salary and Wages Expenditures as a Percent of Total Expenditures</td>
<td>Monetary Donations received by the University Library</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western University</td>
<td>Integration of information literacy and other literacies into Western University courses or curriculum</td>
<td>Staff satisfaction with learning, professional development and training opportunities</td>
<td>Western Libraries community engagement activities</td>
<td>Satisfaction with quality of library resources</td>
<td>Aligned and sustainable library: Successful collaborative initiatives to save costs.</td>
<td></td>
</tr>
</tbody>
</table>

*Table 4: Examples of metrics by strategic plan themes*
Discussion
In Bowlby’s original study of academically-based ARL members from 2010, 72 of the 113 libraries (64%) had active strategic plans available on their websites. A further 28 libraries (25%) communicated some aspects of their plans, such as vision, mission, values, and overall strategic directions. Taken together, 89% of academic ARL libraries (which include some CARL members) shared their strategic plans online compared to 83% of academic CARL libraries in 2017. This suggests that strategic planning is a common activity and that the plans are not only intended for internal use.

In our environmental scan, we noted 5 out of 24 (21%) strategic plans that included information about metrics. In comparison, Bowlby found that 23 of the 72 (32%) academic ARL libraries that published their strategic plans included these. Given the larger number of plans to draw from, Bowlby (2010) noted the various terms used to describe metrics, which overlap with those found for CARL, such as measures and performance indicators. Additional terms used in the ARL strategic plans that were identified by Bowlby include “strategic indicators,” “assessment,” “targets,” “measurables,” “critical success factors,” “benchmark measures,” “expected results,” and “milestones.”

In reviewing the measures of the four libraries it is observed that the metrics closely align with the strategic plan themes (see Table 4 for sample metrics). For example, all four libraries have metrics for student experience and engagement. Three of the four libraries have metrics for research, library staff, and financial health. Two of the four libraries have metrics for collections. The lack of metrics in a particular thematic area could be the result of the methodology used in this study. The authors’ scan of strategic plans was limited to the top level text only; a thematic analysis of the entire plan may have revealed additional thematic areas, and related metrics. For example, Queen’s has suggested a metric on staff performance that is part of their strategic priority: Ensuring Financial Sustainability.

Even though the libraries may have metrics in common thematic areas, it is often the case that the specific metric is unique to an institution. For example, three libraries have metrics for library staff but they are all different. At the University of Saskatchewan, the library is tracking library salary and wages as a percentage of total library expenditures. At McMaster University the library is tracking retention rates while at Western University the library has suggested looking at staff satisfaction with learning, professional development and training opportunities.

Bowlby’s description of metrics was more in-depth. In her environmental scan she identified specific metrics, and the desired results associated with each of these, including the baseline and target quantities, for example. As a result of the limited amount of data available from CARL academic libraries’ strategic plans about metrics, we did not attempt a similar exercise.

Next Steps
The preliminary findings reported here result from an environmental scan of documentation made available online by CARL member libraries. They rely on the authors’ interpretations and do not exploit the insight provided by one or more representatives of the institution, nor any supplemental documents. A later stage of this investigation would ideally make use of these sources to delve more deeply in order to:

- Confirm the accuracy of the findings from the environmental scan.
- Learn more about specific metrics and targets employed by institutions in support of their strategies. An analysis of these metrics using Bowlby’s (2011) grouping of how libraries integrate assessment into planning would be worthwhile.
- If possible, explore strategic planning frameworks or planning methods guiding planning exercises at CARL libraries, for example, the Balanced Scorecard and Management by Objectives.
- Investigate the role of assessment librarians or committees in strategic planning and implementation.
References


### Appendix A - URLs of strategic plans for Canadian Association of Research Libraries

<table>
<thead>
<tr>
<th>Institution name</th>
<th>Strategic planning documentation URLs</th>
<th>Metrics URL</th>
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<tr>
<td>Carleton University</td>
<td><a href="https://library.carleton.ca/about/reports-plans">https://library.carleton.ca/about/reports-plans</a></td>
<td><a href="https://library.carleton.ca/about/reports-plans/strategic-plan/kpm-scorecard">https://library.carleton.ca/about/reports-plans/strategic-plan/kpm-scorecard</a></td>
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<td></td>
</tr>
<tr>
<td>Ryerson University</td>
<td><a href="https://library.ryerson.ca/info/strategic/">https://library.ryerson.ca/info/strategic/</a></td>
<td></td>
</tr>
<tr>
<td>Simon Fraser University</td>
<td><a href="http://www.lib.sfu.ca/about/overview/planning-reports#strategic-plans-three-year-plans">http://www.lib.sfu.ca/about/overview/planning-reports#strategic-plans-three-year-plans</a></td>
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<tr>
<td>Université du Québec à Montréal</td>
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<td></td>
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</tr>
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<td></td>
</tr>
<tr>
<td>Brock University</td>
<td><a href="https://brocku.ca/library/about/strategic-plan/">https://brocku.ca/library/about/strategic-plan/</a></td>
<td></td>
</tr>
<tr>
<td>University of Manitoba</td>
<td><a href="https://staff.lib.umanitoba.ca/sites/staff.lib.umanitoba.ca/files/StratPlanFrameworkREV%20NOV%2015%202013.pdf">https://staff.lib.umanitoba.ca/sites/staff.lib.umanitoba.ca/files/StratPlanFrameworkREV%20NOV%2015%202013.pdf</a></td>
<td></td>
</tr>
<tr>
<td>Memorial University of Newfoundland</td>
<td><a href="http://www.library.mun.ca/media/MUNLibrarystategicplan2015.pdf">http://www.library.mun.ca/media/MUNLibrarystategicplan2015.pdf</a></td>
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<tr>
<td>University of New Brunswick</td>
<td><a href="https://lib.unb.ca/">https://lib.unb.ca/</a></td>
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</table>
Longitudinal Invariance of LibQUAL+: How has LibQUAL+ changed over time?

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Prathiba Natesan, Ph.D., University of North Texas
C. Colleen Cook, Ph.D., McGill University

Acknowledgement:
LibQUAL+ data for this research were provided by the Association of Research Libraries <http://www.arl.org>

Abstract
Purpose
Library researchers are interested in understanding how their library services are keeping up with the rapid advances in technology and newer methods of obtaining information. Accordingly, the commonly used LibQUAL+® instrument, which is used to measure library service quality, may need to be updated to reflect these developments. The purpose of this paper is to study the longitudinal invariance of LibQUAL+® for data obtained from all libraries that use LibQUAL+® since 2013. This study is a more thorough and large-scale replication of a study that considered invariance over a period of three years at the library of the University of North Texas. The results of our study will inform how consistent the dimensions of LibQUAL+® (affect of service, information control, and library as a place) are over time.

Design, methodology or approach
The study will analyze data from 1,327 number of libraries and 2.3 million participants across 29 countries. Much of the data were filtered due to records that are partially complete for a number of reasons including the LibQUAL+ Lite version of the survey. After screening the data for univariate and multivariate normality, a series of structural equation models fit the data. These will include: (a) a confirmatory factor analysis model based on the three factor structure established in the literature, (b) a multitrait multimethod model (MTMM) with time as the method factors and the three factor structure as the trait factors, and (c) longitudinal invariance models.

Findings
All models were a fit in LISREL software. Model fit was evaluated using chi-squared values and fit indices such as comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean squared residual (SRMR).

Implications

MTMM is a novel use of testing the validity of LibQUAL+® across time because it can partial out method effects (i.e. methods (time) of data collection). This adds to evaluating validity of the instrument, which cannot be done in a cross-sectional study. Longitudinal invariance model informs us how (if at all) these factors have changed over time.

Conclusions

We expect factor structure of the LibQUAL+® model to be replicated across time. However, the loadings may differ which would indicate how users’ perceptions of affect of service, information control, and library as a place have changed across time. This will also indicate directions for future research and extension of LibQUAL+®.

Originality and value of the proposal

Very few researchers have access to the complete LibQUAL+® data across institutions and time. We use the latest methodological developments in instrument validation to examine the invariance of LibQUAL+® across time. To the best of our knowledge, no study in library science has examined how to partial out method effects. This can inform researchers if their method of data collection has an impact on the responses. LibQUAL+® has benefitted tremendously by the interest of highly skilled academic researchers in the past and continues to be critically analyzed through interdisciplinary collaborations between library administrators and researchers with expertise in both libraries and methods.

Introduction

LibQUAL+ has built upon the work of Berry, Zeithaml and Parasuraman from the Services Marketing field who refined the original SERVQUAL model as part of the gap theory of service quality. It is a ‘total market survey’ available to libraries through a standardized web protocol measuring the indicators listed on Figure 1: Affect of Service, Information Control and Library as Place. It measures service quality from the user’s perspective and allows libraries to understand performance (a) within the context of users’ expectations (zone of tolerance), (b) longitudinally, and (c) in relation to peer institutions. It has been implemented in multiple institutions, languages and countries since 2000 and is currently in its seventeenth year since it was first tested in 2000. An early history of LibQUAL+ is available on the website chronicling the birth of the protocol (Thompson, n.d.).
Much research has been published on this tool. A recent article (Li, 2017) summarizes this research as follows:

Since 2000, thousands of research papers have been published regarding library assessments via LibQUAL surveys. Generally speaking, those primary published research papers on LibQUAL can be divided into the following five different categories:

1. The first category tracks the evolution of LibQUAL and other emerging library assessment methods and tools (such as Thompson, Cook, & Heath, 2000; Kalb, 2010; Roy, Khare, Liu, Hawkes, & Swiatek-Kelley, 2012; Savage, Piotrowski, & Massengale, 2017).

2. The second category explores the LibQUAL’s factor structure, reliability, validity and unidimensionality associated with library service quality (such as Thompson, Cook, & Thompson, 2002; Thompson, Cook, & Kyrillidou., 2005; Morales, Ladhari, Reynoso, Toro, & Sepulveda, 2012; Fagan, 2014).

3. The third category discusses practical approaches of using LibQUAL surveys for qualitative and quantitative analysis (such as Voorbij, 2012; Neurohr, Ackermann, O’mahony, & White, 2013; Killick, Weerden, & Weerden, 2014; Deltor & Ball, 2015).

4. The fourth category measures users’ perceptions of the values of academic libraries and the quality of library services (such as Cook & Heath, 2001; Thompson, Cook, & Health, 2001; Hossain, 2016; Boyce, 2017) during the process of the LibQUAL assessment.

5. The fifth category presents various case studies focusing on real-world samples using LibQUAL in dynamic academic library settings (such as Tatarka, Chapa, Li, & Rutner, 2010; Greenwood, Watson, & Dennis, 2011; Helgesen & Nesset, 2011; Dennis, Greenwood, & Watson, 2013).

This paper belongs to category number 2 as it adds to our understanding of the factor structure of the model depicted on Figure 1.

Figure 1. The LibQUAL+ Model (2017)
Methodology

Kieftenbeld and Natesan (2013) have already established measurement invariance between faculty, undergraduates, and graduates making the instrument’s measurement properties comparable between the three groups. Lane, Anderson, Ponce, and Natesan (2012) established factorial invariance of the instrument across three years for a single university. However, we do not know how the measurement properties of the instruments have changed over time and if the factor structures are comparable across time. This invariance property is necessary to establish across time because libraries would want to compare their performance across time. Such a comparison is valid if and only if longitudinal measurement invariance holds. The purpose of this study was to investigate the invariance property of LibQUAL+® across 14 years from 2003 to 2016.

Generally measurement invariance is tested using a multigroup confirmatory factor analytic model. Readers may refer to Meredith (1993) and Vandenberg and Lance (2000) for details about measurement
invariance and Chen (2007) about the different cutoff criteria for retaining the various measurement invariance models. The various models that are fitted include:

(a) The CFA model for the entire dataset
(b) The CFA model for each group
(c) A multigroup CFA model for all groups with no restrictions – configural invariance model
(d) A multigroup CFA model for all groups with factor loadings set to be equal across the groups – metric/factorial invariance model
(e) A multigroup CFA model for all groups with factor loadings and intercepts set to be equal across the groups – scalar invariance model
(f) A multigroup CFA model for all groups with factor loadings, intercepts, and error variances set to be equal across the groups – error variance invariance model

Consider a confirmatory factor analytic model with item $i$ indicating factor $f$. Let the intercept, factor pattern coefficient, error, and error variance be $\mu, \lambda, \varepsilon, and \sigma^2_\varepsilon$, respectively. The CFA equation is given in equation 1 as:

$$i = \mu + \lambda i + \varepsilon$$

(1)

The metric, scalar, and error variance invariance models essentially constrain $\lambda, \mu, and \varepsilon$ to be equal across the groups, respectively.

**Model fit and retention**

The more restrictive model is fitted if and only if the current model fits the data well and passes Chen’s criteria based on comparison of fit indices such as CFI, RMSEA, and SRMR. Due to the non-normality of the data, Satorra-Bentler scaled $\chi^2 (\chi^2_{SB})$ statistics were interpreted. Because of large sample size and the sensitivity of the $\chi^2$ statistic to be statistically significant for large samples, we did not make model...
reject the models based on their statistical non-significance. Model modifications were made based on standardized residuals and theory, and fit indices were checked. Modifications were considered for paths that had absolute values of standardized residuals greater than 1.96 which corresponds to a p-value of 0.05. However, paths were not added if the theory did not support such model modification. The simplest model was retained if it fit the theory and the rest of the fit indices indicated good fit. Model fit was also determined based on CFI (> 0.95, Hu & Bentler, 1999), RMSEA, and SRMR (< 0.08, Hu & Bentler, 1999). RMSEA < 0.05 indicated good fit and 0.05 < RMSEA < 0.08 indicated medium but acceptable fit (Browne & Cudeck, 1993). When comparing the models to test measurement invariance Chen’s (2007) criteria based on changes in RMSEA (ΔRMSEA), SRMR (ΔSRMR), and CFI (ΔCFI) were used. For testing metric invariance, a change of ≥ −.010 in CFI, supplemented by a change of ≥ .015 in RMSEA or a change of ≥ .030 in SRMR indicate noninvariance; for testing scalar or residual invariance, a change of ≥ −.010 in CFI, supplemented by a change of ≥ .015 in RMSEA or a change of ≥ .010 in SRMR would indicate noninvariance.

Results

We analyzed only undergraduate, graduate, and faculty responses from 1,327 across 29 countries for the present study. This is because the instrument functions identically for the three groups as shown by Kieftenbeld and Natesan (2013), which means the relationships between the factors and the scores for the three groups are identical. Therefore, the data from the three groups can be combined and compared across time. There were 919401 acceptable and complete responses. A person’s responses were compared acceptable if for minimum level of service quality they chose a number smaller than or equal to the number they chose for the desired level of service quality. Of these, 14.73% were faculty, 23.97% were graduate, and the rest were undergraduate. The sample did not have univariate normality. Therefore, diagonally weighted least squares (DWLS) estimator was used to fit the models (Forero, Maydeu-Olivares, & Gallardo-Pujol, 2009).
Model fit for the entire dataset and all the individual years is given in table 1. The CFA model fit well for all the years and the full dataset. The only issue that we found was fairly high factor pattern coefficients which may indicate possible multicollinearity. For instance items such as rating the library’s collection on “the printed library materials I need for my work” and “print and/or electronic journal collections I require for my work” have similar wording which may result in the participants unable to distinguish between the items adequately enough.

<table>
<thead>
<tr>
<th>Year</th>
<th>$\chi^2$</th>
<th>df</th>
<th>RMSEA</th>
<th>90%CI RMSEA</th>
<th>SRMR</th>
<th>CFI</th>
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<tr>
<td>2003</td>
<td>4988</td>
<td>206</td>
<td>0.022</td>
<td>[0.021, 0.022]</td>
<td>0.030</td>
<td>0.997</td>
</tr>
<tr>
<td>2004</td>
<td>4757</td>
<td>206</td>
<td>0.022</td>
<td>[0.022, 0.023]</td>
<td>0.029</td>
<td>0.997</td>
</tr>
<tr>
<td>2005</td>
<td>6258</td>
<td>206</td>
<td>0.021</td>
<td>[0.021, 0.022]</td>
<td>0.028</td>
<td>0.997</td>
</tr>
<tr>
<td>2006</td>
<td>6534</td>
<td>206</td>
<td>0.021</td>
<td>[0.021, 0.022]</td>
<td>0.028</td>
<td>0.997</td>
</tr>
<tr>
<td>2007</td>
<td>8107</td>
<td>206</td>
<td>0.022</td>
<td>[0.021, 0.022]</td>
<td>0.029</td>
<td>0.997</td>
</tr>
<tr>
<td>2008</td>
<td>7231</td>
<td>206</td>
<td>0.022</td>
<td>[0.022, 0.022]</td>
<td>0.028</td>
<td>0.997</td>
</tr>
<tr>
<td>2009</td>
<td>6223</td>
<td>206</td>
<td>0.021</td>
<td>[0.021, 0.022]</td>
<td>0.028</td>
<td>0.997</td>
</tr>
<tr>
<td>2010</td>
<td>2931</td>
<td>206</td>
<td>0.021</td>
<td>[0.021, 0.022]</td>
<td>0.028</td>
<td>0.997</td>
</tr>
<tr>
<td>2011</td>
<td>2931</td>
<td>206</td>
<td>0.021</td>
<td>[0.021, 0.022]</td>
<td>0.028</td>
<td>0.997</td>
</tr>
<tr>
<td>2012</td>
<td>1571</td>
<td>206</td>
<td>0.018</td>
<td>[0.017, 0.019]</td>
<td>0.026</td>
<td>0.998</td>
</tr>
<tr>
<td>2013</td>
<td>2106</td>
<td>206</td>
<td>0.019</td>
<td>[0.018, 0.02]</td>
<td>0.026</td>
<td>0.998</td>
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</tbody>
</table>
The four measurement invariance models fit the data well as shown in Table 2. They also passed Chen’s criteria. This indicates that the factors were defined identically for all years and there was consistency in the instrument’s performance. However, we did not fit a factor means invariance model because the factor means were not equal across groups in the previous studies and that comparison would have to be done by group.

Table 2: Fit of the measurement invariance models

<table>
<thead>
<tr>
<th>model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>RMSEA [90%CI]</th>
<th>SRMR</th>
<th>CFI</th>
<th>$\Delta$RMSEA</th>
<th>$\Delta$SRMR</th>
<th>$\Delta$CFI</th>
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<tr>
<td>Configural</td>
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<td>2884</td>
<td>0.021 [0.021, 0.021]</td>
<td>0.027</td>
<td>0.997</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metric</td>
<td>68501</td>
<td>3131</td>
<td>0.022 [0.022, 0.023]</td>
<td>0.029</td>
<td>0.996</td>
<td>0.001</td>
<td>0.002</td>
<td>-0.001</td>
</tr>
<tr>
<td>Scalar</td>
<td>82335</td>
<td>3378</td>
<td>0.024 [0.024, 0.024]</td>
<td>0.031</td>
<td>0.996</td>
<td>0.001</td>
<td>0.001</td>
<td>-0.001</td>
</tr>
<tr>
<td>Error variance</td>
<td>88329</td>
<td>3664</td>
<td>0.024 [0.023, 0.024]</td>
<td>0.032</td>
<td>0.995</td>
<td>0.000</td>
<td>0.002</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Conclusions

Many conclusions for future research are listed below and further research, evaluation, experimentation and evolution of the model is highly recommended.

Future analysis may include: additional analysis by group, review how multicollinearity issues can be addressed, a short stable version of the instrument to replace the Lite version, split the dimensions depending on local contextual demands (for example, Open University may not need to ask questions about Library as Place), grounding with in depth interviews and other methods by expert
methodologists to identify how the items needs to be revised, link items and dimensions to other performance indicators to better understand the psychographic, personality and social indicators that relate to library perceptions and success as defined by job placement, higher GPAs, and other factors.

References


Neurohr, K., Ackermann, E., O’mahony, D. P., & White, L. S. (2013). Coding practices for LibQUAL ® open-ended comments. *Evidence Based Library and Information Practice, 8*(2), 96. doi:10.18438/b80g6v


Title: Making a motion for time: Assessment of virtual librarian productivity

Abstract:
As libraries build or enhance their assessment efforts around their library services, leaders must look not overlook their productivity of the employees as they deliver library services. Productivity for any employee can be contingent on many factors such as motivation, training, jobs security, and conditions of the working environment. From review of the assessment of services outcomes, the user statistics noted a decrease in the use of the reference services. This identified an opportunity to understand what the virtual librarians were completing during their scheduled shifts.

Using a modified time motion study methodology as identified by Frederick Taylor, the University library completed a review of the virtual reference staff reviewing the time, frequency and duration of interaction with patrons. The analysis identified the virtual reference staff were only working with patrons approximately 2 hours out of a 6 hour shift. This has allowed the library to review the strengths of the librarians, assigning them additional duties to support other library service functions. The virtual librarians were cross-trained on different aspects of the library, including building library guides and assisting with the virtual document delivery system.

Introduction
For the past few years, libraries have encountered many changes and challenges. From focusing on reduction in staff, transitioning physical collections to digital collections, and space utilization, focusing on library staff can become a secondary job or in some cases, neglected by library management. As more libraries begin to explore the opportunities of remote work with their reference library staff due to space constraints and overall job function, there are many factors that need to be considered for managing and measuring services that have had a traditional structure of being conducted face to face or within the confines of the library. While technology can play an important part in the success of virtual remote librarians, it is important to not overlook the importance of productivity, engagement and morale of the librarians in the virtual role.

Review of the literature:
There was no identified research that explored the productivity of librarians not located on campus that supports virtual reference services. There was literature supporting personal perceptions of virtual service librarians or personal accounts of remote librarian work, however these were not reviewed as they did not meet the scope of the research

When establishing a remote services group that does not work within the physical confines of the library or campus, structured organizational processes must be built to support the virtual librarian including organizational culture (Hickey and Tang, 2015). Job productivity is essential in the role of the remote librarian, being able to efficiently and effectively complete the requirements of the job. When assessing the productivity of remote libraries, it can be difficult for reference services because each interaction with a patron will be different. The time taken to complete reference work can vary due to complexity of the question, how long the librarian has worked for the organization, and familiarity with the resources. Work by Bossaller, Burns and VanScoy (2017) identified that “time is often perceived as something fixed or regular, a consistent structure with which we measure our lives” (p. 2). For assessment purposes, it
cannot be assumed that productivity is the only measure that should be reviewed but it is important to review to ensure that librarians are able to complete the work. When librarians are engaged within their work, job performance and satisfaction increase.

While service level agreements and rubrics are in place for measuring the outputs of the librarians, these measures did not take into consideration the strengths or activities that may engage librarians. Segun-Adreniran (2015) identified that “the set of objectives of any organization or institution cannot be achieved without the calculated and effective input of human beings” (p. 1). Obtaining the input from the librarians who complete the service is important to ensure that they perform at a high level and continue to have a high morale.

Value of services should be reviewed with evidence to ensure that the quality of service provided was provided. Rubrics can be used to measure the quality of the service being provided. Building rubrics that assess the reference response can include but not be limited to providing multiple ways to respond to the reference question, by answering the question or providing clarification of the question being asked, and ensuring that the information is provided in a clear and concise way with no spelling errors.

The time motion study method was used quite extensively in the early 1900’s where repetitive jobs were reviewed to ensure there was no wasteful motion, that tasks were broken into bite size pieces and there is a precise time for each specific task. Library work, while not factory or piece work can be repetitive for many reference encounters. The purpose of using a modified time motion study was to utilize effective planning and scheduling of resources to increase productivity and the morale of our librarians through the identification “time on task”.

**Method:**

The modified time motion study began with reviewing how the virtual librarians spend their day. There was a 30 percent reduction in the number of monthly inquires as compared to the same time period one year before. The librarians selected for this study were librarians who only conducted reference services via a technology platform; they did not conduct any in-depth interviews or provide library instruction using the library technology platform.

Varied communication modes for reference librarians are used in academic libraries. The use of telephone, text, chat, email and face to face interview are typically utilized for reference services. To ensure clarity of the services reviewed for this study, the service mode was limited to only basic reference inquiries completed by dedicated library staff. Library instruction and in-depth reference interviews for research were not included in this review.

The first part of this modified time motion study was identification of the time that the librarians used to conduct the reference service. From a review of the 2016 fiscal year statistics of usage of the “Ask A Librarian” service, it was noted that there was a steady decline in usage. From the technology system all “Ask A Librarian” service transactions were downloaded into a report and the final six months of the fiscal year 2016 were used for analysis. A six month period was an appropriate snapshot for our purposes as the university offers continual enrollment without traditional semesters, this reduces the amount of seasonality found in our traffic. The report contained the following information: time and date the question was asked, patron identifier, question that was asked, answer provided by librarian
and the time and date that the answer was provided. This content was then sorted by individual reference librarian for analysis.

The second part of the modified time motion study was to interview each of the reference librarians. The interview questions were geared to identify the specialties that each librarian has, the type of work that the like to do, and what motivates them in doing a good job.

The third and final step of the modified time motion study was to identify, using evidence based assessment data to look for additional opportunities for the librarians. To provide additional work assignments, the library director needed to identify work that aligns with the identified areas that motivate the librarians, but could be delayed in completion to ensure that the service level agreements with the “ask a librarian” process were not impacted. Additional assessment data from monthly random quality reviews of the reference interactions was also reviewed.

**Implications and Limitations:**

The sample of librarians that were identified for this review was small. There were other librarians that support this service; however, they have additional duties that include the in-depth reference interviews, document delivery service requirements, and electronic reserve reading process assignments.

Dependent upon on how long the librarians have worked in the library, there will be a learning curve for providing “Ask A Librarian” service. With the addition of resources or new programs, this learning curve will continue. Workers gain skills and knowledge working over a timeframe. Newer librarians may not readily meet the mean of a fifteen minute completion time as benchmarked by the study; however, this time should be considered for future assessment activities of librarian performance. As any productivity results are reviewed, there will always be events or changes to the process that will alter the benchmark time. Providing an allowance or additional time during periods of change should be reviewed when completing any time motion study.

It was quickly ascertained that not all reference librarians were interested in learning about and completing new duties in addition to their reference services duties. With each individual librarian being different and engaging in different ways, it is important to recognize that while the librarians may not like the work the work still needs to be completed.

**Results**

This data was reviewed from the three separate approaches for the modified time motion study. The first approach was for timing. The reference transactions were analyzed. The time from when the response was submitted to when the response was closed was calculated to identify a mean for the time that a reference librarian spent completing each “Ask A Librarian” response”. A mean of fifteen minutes per response was identified and used as a benchmark to look at the overall timed activity of the librarians on the “Ask A Librarian” responses. Additionally, each transaction was looked at from a time of day and calendar day perspective. The results were viewed by looking at the actual day that the librarians worked and analyzed with the “Ask A Librarian” data.
An examination of the process revealed the average time to complete a robust reference interaction was fifteen minutes. Correlating this information with the inquiry traffic it was identified that the librarians were spending only two hours of a six hour shift completing reference work.

The service level for completing the virtual reference inquiry completion time remained under four hours; the benchmark for this service is a response within twenty-four hours. ---This staff model shows that it is effective in having the staff being nimble and responsive to service needs. Reference librarians can quickly respond to variations in demand for reference assistance.

The second approach to the modified time motion study was conducting the interviews. Each librarian had a one on one interview with the library director. Each librarian was asked about areas of expertise, technology skills and preferences for additional work. It was identified that each librarian had content expertise that covered over 70 percent of the programs that are offered by the University. All librarians but one had interests in building library content and assets to support online learning in the ways of videos, tutorials and library guides. One librarian was not as open to these suggestions, but noted that if required by the job, they would complete necessary work as assigned.

The third approach to the modified time motion study was to look for consistencies in approach to the reference interaction. Review of the rubric transactions identified that there were inconsistencies in the approach each of the librarians took in completing the reference transaction.

As a result of a review all three of these approaches, the reference librarians were trained on other areas of service such as interlibrary loan and content creation. This action enabled the library to optimize the usage of staff time and skills. By modifying workload, there has been an increase in the production of building of library assets through the assignment of guides to librarians based upon librarian’s interest and area of expertise. The library transitioned the fulfillment of interlibrary loans to the reference group resulting in a less than one day fulfillment time in these requests while allowing other library service teams to focus on instruction and assessment.

A review of the date and time of day inquiries were submitted a shift in peak submission times was noted. The peak usage days remained Monday and Thursday; however, the peak daily hour spread reduced from 7:00AM - 10:00PM to 7:00AM - 8:00PM (PST).

As a whole this undertaking allowed library staff the opportunity to reflectively examine the reference service process and implement a few simple changes, which had a positive impact on our staff engagement and services rendered to user populations as we adapt to a changing environment.

Discussion and conclusions:

The purpose of this research was to identify productivity measures as the library reviewed the virtual reference service provided by our librarians. As library management looks to follow the Kaizen model of continuous improvement, a focus on reference services ensures our reference staff was most effective in meeting the needs of our user populations. In a changing environment the continuous improvement processes generated several questions related to our reference services, such as:

- What is the best process in providing exceptional reference assistance?
- Can we implement a best practice standard into the reference process?
• Is our current reference rubric meeting our needs and allows us to continually improve our service?
• How have our inquiries shifted related to time of day and day of the week, in essence when do our users need our assistance?
• What is the optimized time requirement to provide in-depth reference services?

An unexpected finding from the study was that the librarians had a wide variety of communication styles and research preferences resulting in an inconsistent student experience. Implementing best practice standards ensured a consistency of our reference services. The updated review rubric was shared with staff and is now a tool to measure reference performance. The review process provides an opportunity for actionable coaching feedback supporting a continuous improvement environment.

Once all data was analyzed, there were three main process improvements that were implemented. Consulting the Virtual Reference Center authored by Reference and User Services Association (RUSA), an association governed by the American Library Association, a set of reference guidelines was created. An updated rubric document was created; which articulates the expectation, criteria, and time to completion, of a quality reference interaction. These elements are used to define and measure the quality of our reference services moving forward.

Modifying staff schedules, to conform to high traffic hours, allowed us to optimize our workforce; ensuring librarians were available during peak hours of the day. The new “on desk” schedule to reflect the peak traffic hours of 7AM to 8PM.

Reference librarians were cross-trained in other areas of service. These areas included the creation of topic or course research guides and the fulfillment of interlibrary loan requests. By using a modified time motion study, the library was able to identify new ways of assessing, monitoring, and engaging the virtual librarians.

References


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Managing Transitions
Using William Bridges’ Transition Model and a Change Style Assessment Instrument to Inform Strategies and Measure Progress in Organizational Change Management

Julie L. Miller
Butler University Libraries

As academic libraries redefine their services and roles within higher education, library leaders are charged to implement transformative changes. The biggest leadership challenge in effecting change is the human element: helping employees to embrace and implement the changes necessary for transformation. This case study describes the change management process used by Butler University Libraries in 2013-2014 to migrate to a cloud-based integrated library system that streamlined workflows and drove reorganization. It provides background and context for the system migration, and describes methodology of the change management process, focusing on two tools: the Ryan Change Style Assessment and the book *Managing Transitions* by William Bridges and Susan Bridges. The case discusses the practical limitations of this approach to change management as well as anticipated and unanticipated outcomes.

**Background**

A nationally recognized private non-profit university, Butler University's academic mission is to provide the highest quality of liberal and professional education and to integrate the liberal arts with professional education by creating and fostering a stimulating intellectual community built upon interactive dialogue and inquiry. Located within the city of Indianapolis, Indiana, the University has approximately 4300 undergraduate students and 500 graduate students. Irwin Library is the main library and houses collections in the humanities, arts, and social sciences. The Ruth Lilly Science Library is located within a separate academic building in close proximity to academic departments in the sciences and health sciences.

Butler University is a member of the Private Academic Library Network of Indiana (PALNI), a consortium of 23 (now 22) libraries founded in 1992 with grant funding from the Lilly Endowment Inc., a philanthropic organization located in Indianapolis, for the purpose of automating library services. This automation project drove the implementation of the Internet at most of the PALNI member institutions—evidence that the library staff were technology change agents at their institutions (Frye et al., 2009, pp.40-41).

In 2013 PALNI libraries were using an integrated library system (ILS) developed in the 1980s. Each member institution had its own instance of the ILS, and routine maintenance—which required that each workstation be individually updated with every change in the software—was time and labor intensive. PALNI formed an ad hoc committee to review the next generation of ILS systems and to make a recommendation to the Board for a web-scale system that would streamline system maintenance and library workflows, as well as provide opportunity for deeper collaboration among the consortium's member organizations. Informed by this review, the PALNI Board of Directors selected OCLC's Worldshare Management System (WMS) as its new ILS to be implemented in Spring-Summer 2014.

The timing of the system migration was fortuitous for Butler University Libraries. The University had hired a new dean of libraries in 2012 who initiated a strategic planning process that involved faculty from across the university, administrators, staff, students, and representatives from internal and external partner organizations. One of the strategic priorities of the Butler University Libraries’ plan for 2013-2017 was “relocation of resources,” with goals to realign the allocation of operating budgets, staffing, and library spaces in alignment with the strategic plan. The migration to WMS provided an opportunity to streamline library service workflows, thereby freeing up staff capacity to develop and expand library services, especially scholarly communication and information literacy initiatives.
Methodology

When the PALNI Board of Directors selected a web-scale library system, they intended to use the system as a catalyst for change that would decrease direct costs (i.e., membership fees) and indirect costs (e.g., labor required to support and maintain the system). Another desired outcome was increased opportunities for collaboration through consortial borrowing and lending of print collections, collaborative collection development, and shared expertise, such as specialized cataloging in foreign languages and music, among other ideas. Such collaboration represented major changes in the internal processes of member institutions. To help staff prepare for and participate in the development of these processes, the Board hired the Singer Group, library consultants with expertise in change management.

The Singer Group introduced PALNI members to the Ryan Change Style Assessment published by The Ryan Group, Inc. The Ryan Change Style Assessment is one of several instruments available to assess how an individual responds to change. A self-scoring instrument, the Ryan Change Style Assessment identifies four change styles based on scales in four dimensions: (1) preferred role during change (lead-follow), (2) emotional expression (low-high), (3) orientation (people-task), and (4) openness to change (excited-cautious). The scoring results place each respondent into one of four change styles: Initiator, Collaborator, Protector, or Questioner (see Figure 1). Supporting documentation from The Ryan Group, Inc. provides information about the needs and contributions of each style during change (Ryan, 2009).

PALNI paid for each employee of the 23 member institutions to take the Change Style Assessment, and the Singer Group facilitated training at an all-staff meeting to discuss the profile of each change style. This training provided employees of Butler Libraries the opportunity for self-reflection, a common vocabulary for talking about possible responses to change, and tools for interacting with others during the change process. In his article “Anything Can Happen in the Zone” Josh Petrusa, Associate Dean of Collections and Digital Services at Butler Libraries, described the benefit of using the Ryan Change Style Assessment: "Having [each style] identified for our staff helped us all relate to each other and see behaviors in the proper light. Each style plays a role in helping an organization through change...." (Petrusa, 2016, p. 5).
The library leadership group compiled the results of the Change Style Assessment and discussed the implications of our overall mix of change styles. Figure 2 shows the distribution of change styles among the 23 Butler library employees who took the Change Style Assessment during the planning phase. Nine staff were identified as Collaborators or Initiators, the two change styles identified as excited by change. Four of the five members of the library leadership group were included in this group. Fourteen of the library employees who took the assessment identified as Protectors or Questioners, the two change styles that are cautious about change, indicating the majority of library employees would probably be slower to adapt to change than others within the group.

Based on the Ryan Change Style profiles, the four change styles complement each other. For example, the Protectors appreciate personal reassurance and sincere expressions of appreciation during transitions. They also appreciate being asked directly for their input and opinions. Their contributions to the change process include making sure others were okay during the change and providing insight with regard to the effect of change on other constituent groups—qualities that complement the characteristics of Initiators, who tend to be decisive and focused on taking action without always considering the impact on others. Questioners, on the other hand, appreciate detailed information (data!) and ample time to make decisions. They also appreciate clear direction with regard to priorities and time management. They contribute quality control and an organized approach to change—qualities that complement the characteristics of Collaborators, who are less focused on the details. Use of the four change style profiles became a powerful tool for the library leadership team as we developed strategies for change management during the migration planning process (Ryan, 2009).

The second tool employed by the library leadership team was Managing Transitions: Making the Most of Change by William Bridges and Susan Bridges. Based on the work of ethnographer Arnold van Gennep in studying rites of passage in various cultures, the Bridges’ Transition Model focuses not on change (which is situational and happens to us) but on...
transition, which is the psychological process of internalizing change (Bridges, 2009, p. 3). The model describes three phases of transition: (1) Ending, Losing, Letting Go, (2) The Neutral Zone, and (3) The New Beginning (See Figure 3).

![Figure 3 The three phases of transition. © William Bridges Associates. Used with permission.](image)

Bridges provides a brief description of each phase:

1. Letting go of the old ways and the old identity people had. This first phase of transition is an ending, and the time when you need to help people to deal with their losses.

2. Going through an in-between time when the old is gone but the new isn't fully operational. We call this time the "neutral zone"; it's when the critical psychological realignments and repatternings take place.

3. Coming out of the transition and making a new beginning. This is when people develop the new identity, experience the new energy, and discover the new sense of purpose that make the change begin to work.

(Bridges, 2009, pp. 4-5)

Managing Transitions gives practical advice to help employees through each phase. While planning for the system migration, the library leadership team discussed each chapter at our biweekly meetings. This common reading provided a shared vocabulary for discussing change as well as concrete suggestions for helping staff to let go of the old way of doing things and to envision themselves taking on new roles and developing new, more efficient processes.

Because the leadership team was using both the Ryan Change Style Assessment and the Bridges book simultaneously, we developed the idea of combining the two tools into a pre- and post- migration exercise to measure employee readiness for and integration into their new roles following system migration and reorganization. In May 2014, three months before the migration go-live date, we held an all-staff meeting. During one of the activities, we provided a print-out of the three phases of transition figure from Managing Transitions (see Figure 3). Each employee was given a dot sticker to place on the map to indicate their current position relative to their readiness for the system migration. They were not aware that the dot was color-coded to correspond to their change style. We collected the maps and compiled the placement of all dots onto one map (see Figure 4).
Figure 4. Pre-migration map of staff readiness for change adapted from the Bridges Transition Model with permission of William Bridges Associates.

Pre-migration findings

The pre-migration map of staff readiness for the migration showed that ten of 21 employees (47%) placed themselves on the border between the “Neutral Zone” and “A New Beginning”—they were ready for change. Not surprisingly, three of them identified as “Collaborators” and three identified as “Initiators,” the two change styles of the Ryan Assessment that are excited by change. Seven of the employees (33%) placed themselves within the “Neutral Zone.” All four change styles were represented in this group. Four employees (20%)—two Protectors and two Questioners, the styles cautious about change—placed themselves inside or on the border of “Letting Go.” This initial map demonstrated that most of the employees with change styles open to change were ready, while many of those cautious about change were less likely to feel ready for a new beginning. The leadership team used these findings to be more intentional in addressing the concerns of Questioners and Protectors by communicating detailed information about migration tasks and workflow changes as information became available and by reassuring employees that changes due to the system migration would not result in elimination of positions.

The pre-migration map became an essential tool for the leadership team in developing strategies for communication and decision-making. The transition strategies used by the leadership team during the migration implementation phase included intentional over-communication of all issues related to the system migration, for both internal and external communications; ceremonial events to acknowledge critical milestones; and increased employee engagement in redefining their roles and position responsibilities. The table below (Figure 5) provides some examples of strategies developed by the leadership team to assist employees in the process of internalizing and adapting to changes in their roles, responsibilities, and workflows:
<table>
<thead>
<tr>
<th>Strategy</th>
<th>Target Audience</th>
<th>Purpose(s)</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over Communication</td>
<td>Library staff</td>
<td>Set timelines</td>
<td>Weekly migration status updates via email</td>
</tr>
</tbody>
</table>
| Event                          | Library staff with 15+ years of service | • Recognition of their work  
• Reminders of technological advances (changes survived) | Tea with the Sages                                                                                                                        |
| Engagement re: new roles and responsibilities | Library staff | • Collaboration  
• Joining a community of practice | • OCLC WMS online tutorials;  
• PALNIHub portal for staff communication                                                                                               |
| Engagement re: new roles and responsibilities | Library staff; Stakeholders | Realigned staffing based on streamlined functionality | • Revised organizational chart;  
• New titles for positions                                                                                                                |
| Engagement re: new roles       | Library staff; Stakeholders   | Realigned staffing based on streamlined functionality                       | Physical relocation of selected positions                                                                                             |
| Engagement re: new roles       | Library staff                 | Realigned staffing based on streamlined functionality                       | Pilot site for OCLC workflow observation / analysis                                                                                     |
| Letting Go                     | Library staff                 | New functionality                                                           | • Withdrew from FDLP program;  
• Consolidated two interlibrary loan operations into one;  
• Ceased periodical check-in process                                                                                                      |
| Event                          | Library staff                 | New functionality                                                           | Check out books at Star Fountain with iPads (because we can!)                                                                      |

Three months after the system migration, the mapping exercise was repeated to assess progress toward employee integration into their roles using the new system.

*Figure 5. Change Management Strategies Used during System Implementation*
Post-Migration Findings

The post-migration map (Figure 6) showed that twenty of 26 (77%) of library employees positioned themselves in or on the border of the “New Beginning” phase, three (11.5%) positioned themselves within the “Neutral Zone,” and three (11.5%) positioned themselves in the “Letting Go” phase. All of those who placed themselves in the “Neutral Zone” or “Letting Go” phase identified as Questioners or Protectors. One person, likely a stakeholder who was an invited guest at the meeting but who had not taken the Ryan Change Style Assessment, used a black pen to mark their position on the map. Overall, the leadership team felt that most employees had successfully navigated the Neutral Zone and were excited about the new beginning using the WMS system and about the development of new services made possible by efficiencies in the web-scale system. At this point in the change process, supervisors were aware of those individuals struggling with their new role during the change. Two employees who had difficulty adapting left the university within a year of the system migration, one to seek other employment and one to retire.

Practical Limitations

The purpose of the pre- and post- system migration maps was to be able to visualize, generally, staff perceptions of their readiness for the system migration by change style. We therefore made the mapping process anonymous, and we did not attempt to draw conclusions about any individual’s progress toward “The New Beginning” phase. Also, the library experienced some staff changes during the period between the creation of the two maps depicting staff “location” relative to the phases of transition; some individuals who participated in the pre-migration mapping exercise did not participate in the post-migration exercise, and vice versa.
Conclusions

Used in combination, the model for successful organizational change presented in Managing Transitions and the Ryan Change Style Assessment instrument provided the leadership team at Butler University Libraries with an effective process for minimizing disruption and discord during a transformative system migration. The outcomes we had anticipated included:

- improved communication through a common vocabulary for change management;
- better understanding of and ability to leverage individual and collective change styles to improve morale;
- a smooth migration facilitated by better communication and improved morale;
- increased capacity for new library services. Ultimately, Butler Libraries repurposed two positions in support of scholarly communication initiatives, including development of our institutional repository and archival digitization projects, and the position of serials librarian was repurposed as an electronic resources librarian.

The outcomes we did not anticipate included:

- improved decision-making through balanced change-style composition on teams, including search committees and task force committees;
- institutional recognition of the library organization as a resource for change management, including requests to present our process at a workshop for Academic Affairs leadership and the Academic Affairs staff development program;
- revitalization of the library organization’s image as a forward-looking, vital resource. For the first time, the Provost invited the library to host a lunch for the Butler University Board of Trustees in which we presented an overview of the strategic plan as well as new initiatives. This event significantly raised the visibility of the library across the University.

Additionally, the migration to the web-scale system has resulted in lower direct and indirect costs for PALNI member organizations, which has made it possible for the consortium to fund additional staff, including a full-time scholarly communications director and a full-time knowledge-base and licensing librarian to support member libraries. The consortium has also explored deeper collaboration facilitated by the web-scale system—including new models for sharing expertise, e.g., a full-time staff position at Butler University that is funded fifty percent by PALNI to provide administrative support for the consortium. We have implemented a consortial borrowing and lending program called PALShare that costs significantly less than traditional interlibrary loan with shorter turn-around times and increased access to our collections. The PALNI consortium has also partnered with libraries in the Academic Libraries of Indiana (ALI) in a Shared Print Initiative to identify and retain scarcely held items in academic libraries in Indiana and to reduce redundancy in our print collections. All of these changes have been facilitated by the WMS implementation and by the steps we have taken to prepare library employees for change.

Works Cited


Mapping Student Days
Measuring Library Value through Exploratory Multi-sited Ethnography

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Purpose
Research on students’ educational experiences demonstrates the importance of a holistic understanding of the complexity of students’ lives to developing library programs, services, and resources that effectively address undergraduate needs. Investigating the local expression of student “taskscapes,” or the ensembles of interrelated social activities that take place across space and time (Delacore et al, 2009, p. 14), provides critical information about students’ lived experience. The “A Day in the Life” (ADITL) Project [1] sought to understand students’ taskscapes at university campuses across the United States through a multi-sited ethnographic investigation of students everyday activities. By examining taskscapes rather than specific locations, this project was concerned not only with how students conduct work in the library, but also the library’s relationship with other spaces and places of academic work and the broader experiences of student life. While previous studies have examined similar issues at single universities (Delacore et al, 2009), this study is unique because it was conceived and designed to enable cross-institutional comparison and analysis of data from a diverse cross-section of universities that were selected to represent different types of higher education institutions and the diversity of the US student body.

Research Design and Methods
The ADITL Project was a collaborative multi-sited ethnographic exploration of students’ experience of place and practices of space use at eight universities: Indiana University Bloomington (IUB), Indiana University Purdue University Indianapolis (IUPUI), Gustavus Adolphus College (GAC), University of Colorado Boulder (UCB), University of North Carolina Charlotte (UNC Charlotte), City University of New York City Tech (CUNY CT), City University of New York Borough of Manhattan Community College (CUNY BMCC) and City University of New York Brooklyn College (CUNY BC). These universities represent a range of types, settings, and missions of higher education institutions in the United States (Table 1), as well as the demographic diversity of the US student body. The ADITL Project developed an innovative mixed-methods approach to data collection that combined text message surveys delivered via students’ mobile telephones, geolocation and mapping, and qualitative ethnographic interviews.
<table>
<thead>
<tr>
<th>University</th>
<th>Participants</th>
<th>Student Population</th>
<th>Carnegie Classification</th>
<th>Size &amp; Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>CUNY BC</td>
<td>18</td>
<td>17,390</td>
<td>Master’s Colleges &amp; Universities: Larger Programs</td>
<td>Four-year, large, primarily nonresidential</td>
</tr>
<tr>
<td>CUNY BMCC</td>
<td>20</td>
<td>26,606</td>
<td>Associate’s Colleges: High Transfer-High Traditional</td>
<td>Two-year, very large, nonresidential</td>
</tr>
<tr>
<td>CUNY CT</td>
<td>20</td>
<td>15,579</td>
<td>Master’s Colleges &amp; Universities: Larger Programs</td>
<td>Four-year, large, nonresidential</td>
</tr>
<tr>
<td>GAC</td>
<td>19</td>
<td>2,457</td>
<td>Baccalaureate Colleges: Arts &amp; Sciences Focus</td>
<td>Four-year, small, highly residential</td>
</tr>
<tr>
<td>IUB</td>
<td>56</td>
<td>46,416</td>
<td>Doctoral Universities: Highest Research Activity</td>
<td>Four-year, large, primarily residential</td>
</tr>
<tr>
<td>IUPUI</td>
<td>31</td>
<td>30,690</td>
<td>Doctoral Universities: Higher Research Activity</td>
<td>Four-year, large, primarily nonresidential</td>
</tr>
<tr>
<td>UCB</td>
<td>23</td>
<td>32,432</td>
<td>Doctoral Universities: Highest Research Activity</td>
<td>Four-year, large, primarily residential</td>
</tr>
<tr>
<td>UNCC</td>
<td>18</td>
<td>27,238</td>
<td>Doctoral Universities: Higher Research Activity</td>
<td>Four-year, large, primarily nonresidential</td>
</tr>
</tbody>
</table>

*Table 1: Characteristics of ADITL Participating Universities*

The ADITL Project team recruited 205 students (see Table 1) to participate in the study. Each student chose one of two days during an academic work week to receive the text message surveys. Twelve sets of messages were sent to each participant approximately 75 minutes apart, asking students to indicate their location, what activity they were participating in, and how they felt at that time. The 75-minute interval was chosen to ensure that students received surveys during different parts of the hour throughout the day in order to help avoid potential bias caused by scheduling effects (e.g. most universities schedule courses to begin and end at consistent times in an hour, such as starting on the hour and ending at 10 minutes to the hour). Surveys for all eight participating universities were sent on the same days and at the same times to ensure comparability across the research locations, beginning at 9:10am and ending at 10:55pm. Students were instructed not to interrupt their courses to respond to the messages and not to respond if it was unsafe to do so (e.g. while driving). In these circumstances students were asked to respond once they became available and to provide information about what they were doing when the message arrived. In total, 2210 responses were collected.

Once the survey was completed, the research team used the responses to create a day map for each student. The research team then used the map to guide a semi-structured qualitative interview with participants about the student’s daily tasks and activities, the spaces and locations in which the student conducted academic research and day-to-day work, and the student’s overall educational experience. These interviews were transcribed and thematically coded by the research team using Dedoose qualitative data analysis (QDA) software.

Data collected in the interviews enabled the research team to build a grounded perspective about the variety of pressures and motivations that inform the choices students make about when, where, and how they structure and organize their
academic lives and balance academic activities with professional, familial and personal needs. The analyses of everyday practices made it possible to compare how student needs vary within different institutional contexts and to uncover differences in experience associated with the diversity of students' lives and university environments. In this way, the ADITL team sought to holistically understand how the complexity of students' life contexts are interrelated with the development of university programs, services, and resources intended to effectively address students' needs. This grounding in observed practice will also help enable the research team to develop recommendations for specific libraries and universities to more effectively respond to students needs.

Findings

Both the mapping data and the qualitative interviews revealed strong patterns in students' spatial experiences among the universities. These patterns indicated that a university’s location and setting had a much stronger effect on students’ educational taskscapes, than the type of institution. Three distinct groups emerged among the eight institutions: residential campuses, non-residential campuses in semi-urban locations, and non-residential campuses in highly urban locations. Daily travel times and distances appeared to be the principal determining factor for these groups. Students attending institutions in each group exhibited similar total travel distances, commuting times, and average distances between locations among their constituent universities (Table 2).

These travel time and distance figures suggest that the necessity of the commute to campus structures students’ spatial experiences in significantly different ways. The time element in particular is relevant because the time needed to travel has the most direct impact on the time that students have for other activities in their daily lives, including study. The method of travel (student-driven or public transportation) further determined whether that commute time could also be used for studying (see below). Students from all eight universities reported very similar distributions of both educational and non-education activities. These results suggest that the tasks of student life are quite similar among students at all types of universities, but where and how these tasks get accomplished and the qualitative experience of these tasks vary significantly, and are profoundly affected by external spatial constraints and social obligations. These patterns also indicated the importance of developing library service models that meet student needs in ways that fit within these broader experiences and contexts.
Our preliminary analysis of the interview data has yielded some broad themes, and further illuminates the practices underlying the statistics and maps generated from the mapping data. We have divided our discussion into three major categories of institutions: Residential Campus, Non-Residential Campus, and Urban Commuter Campus.

**Residential Campus (IUB, UCB, GAC)**

The University of Colorado Boulder and Indiana University Bloomington are both the flagship campuses of their university system. At IUB, nearly all students live in Bloomington, though it is common for undergraduates to live in residence halls at the beginning of their college careers and move off-campus as they progress through their degree programs. UCB is also primarily residential, though as the cost of living in Boulder has risen some students have moved to locations outside the city and must travel longer distances to campus. Located in St. Peter, Minnesota, Gustavus is the smallest institution in this study and is entirely residential.

Student movements at these universities centered principally on the campus itself. Students moved frequently within a small geographic area, primarily between residence halls and other campus buildings or locations in town near the campus. Although students often didn’t travel far, they often moved frequently between locations and among a patchwork of academic and nonacademic activities.

<table>
<thead>
<tr>
<th>University</th>
<th>Median Distance Traveled (m)</th>
<th>Median Reported Commute Time (min)</th>
<th>Mean distance between locations (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IUB</td>
<td>6,769</td>
<td>10</td>
<td>795</td>
</tr>
<tr>
<td>UBC</td>
<td>8,001</td>
<td>10</td>
<td>1,557</td>
</tr>
<tr>
<td>GAC</td>
<td>5,959</td>
<td>10</td>
<td>684</td>
</tr>
<tr>
<td>IUPUI</td>
<td>10,878</td>
<td>25</td>
<td>2,820</td>
</tr>
<tr>
<td>UNCC</td>
<td>24,993</td>
<td>15</td>
<td>4,645</td>
</tr>
<tr>
<td>CUNY BC</td>
<td>15,293</td>
<td>35</td>
<td>1,695</td>
</tr>
<tr>
<td>CUNY CT</td>
<td>16,407</td>
<td>60</td>
<td>2,424</td>
</tr>
<tr>
<td>CUNY BMCC</td>
<td>23,541</td>
<td>50</td>
<td>3,174</td>
</tr>
</tbody>
</table>

Table 2: Reported Distances (in meters) and Commuting Times (in minutes)
Because these students typically live on, or near campus, both the spatial and conceptual distance between “home” and “campus” are short, and the demarcation between spaces is often blurred. This fluidity between spaces enabled students to be fairly flexible in their choice of study locations, and to match the characteristics of these locations with their needs at a particular point in their day.

Students often chose to study at their residence--either a residence hall or an apartment--because of the convenience of “having everything within reach” as well as dedicated personal workspace, comfortable furnishings, peers or roommates with related academic interests, and easy access to food and other supplies.

**Non-Residential Campus (IUPI, UNCC)**

IUPUI is an urban campus with a largely commuter student body. In 2014, only 36% of first-time beginner students lived on campus (Hansen, 2014). Students reported a lot of movement among campus, home, work, and other locations. Parking was mentioned frequently by students as the worst thing about the campus.

The University of North Carolina, Charlotte is located in the suburbs of the city, and the clusters of places that students use are not limited to the campus, which is north and east of the city center, but include the suburban and rural places where our students live and work. Our study makes clear that Charlotte students drove the most distance of all of the locations, and though they did not necessarily spend the most time traveling overall, their commute time could not be used as study time. Their complaints about the commute were more often about finding a place to park their car than about the traffic. Even students who lived relatively close to campus-- technically within walking distance--spoke about driving, often because they needed to drive elsewhere immediately from campus, in particular to work. Students who lived close to campus also drove because of safety concerns -- the UNC Charlotte campus is not in a terrifically walkable part of Charlotte, and it is easier to navigate by car than on foot.

Perhaps not surprisingly, the non-residential campuses had the highest range of distance travelled of all the campuses, although not median distance travelled. They fell well below the urban commuter campuses in time spent commuting. Based on text messages, students at the non-residential campuses spent more time working and less time studying than other campuses. Many of the themes for the urban, commuter campuses were echoed by non-residential students.

**Urban Commuter Campus (CUNY locations)**

CUNY is a highly urban commuter institution with campuses across New York City. An important demographic to keep in mind is that 39% of CUNY students have household incomes of less than $20,000/year; in the community colleges this figure is close to 50% (CUNY Office of Institutional Research, 2015). Financial constraints can mean that CUNY students are often forced to make difficult trade-offs. One trade-off could be time for money: spending a couple of hours in the library scanning pages because you can’t afford to buy the textbook. Another could be having no personal, private living space because you have to share your apartment with several other people.

Most of the urban students in this study lived with family, some with roommates. It was not unusual to hear of 5 family members in a one-bedroom apartment, or two related families living in a two-bedroom apartment. This means all spaces at home are...
common spaces, even bedrooms, where multiple family members sleep. For example, one student shared a bedroom with her brother and grandmother. Given this, it’s not surprising that these urban students spoke more about family and relationships than did participants from the other colleges.

While some students managed to do some studying at home, many more cited the distractions caused by siblings, parents, or children of their own, and lack of space as deterrents. If studying did happen at home, it occurred in a common space, such as a kitchen or living room, as well as in bedrooms shared with other family members. Lacking a private space for studying, students talked about knowing or feeling they should study while they’re at home, but in the small space of their apartments, they could not avoid distractions such as TV, video games, or interacting with family members.

Living with family also meant sleep patterns were disrupted—going to bed late, getting up early to get time in the shared bathroom, preparing breakfast for other family members, or getting a child ready for their day. Urban students were often tired and stressed.

Another workspace for urban students was their commute. The urban students in this study traveled by bus, express bus, subway, train (suburban rail), and car (usually a family member picking them up from a subway or train station). Commuting often involved transfers—bus to subway, subway to subway, train to subway. Students expressed frustration with the time spent commuting, as well as crowds on the commute. In fact, one participant took the subway a few stops in the opposite direction of her home in order to get on at a station where she could get a seat.

Urban students tried to study on the commute to recoup the time if they can. The most common activity for students was reading; they also reviewed their notes. From other studies, we know some are also typing their assignments on their phones while commuting. As one student said, “First time in college, I didn’t realize how difficult it would be for a college student to study, so like, I figured instead of listening to music and having my headphones plugged in, I’d rather study on the subway. I noticed how my grades improved since I’ve been doing that. . . I study, like, whenever, because I’m working also, and it’s just very hard to study.”

Even with the problems of commuting, some students would intentionally commute to campus when they don’t have classes in order to find an appropriate study space, often in the library, because home is not conducive for their academic work.

The Role of the Library

At the residential campuses, the library was often seen as an alternative to a residential space, particularly when students wanted to get away from or minimize distractions. In this view, the library was framed as a separate place that signaled a location to do serious academic work because of the quiet and observing peers doing focused work. When tempted to get distracted, students noted that seeing others engaged in studying activities helped them focus on their academic work.

For students at the non-residential campuses, the distribution of their taskscapes across the city also results in many of the students clustering their time on campus, so as to cut down on the days per week they have to travel. When students talked about the time they spend on campus, they spoke about staying all day. When they planned to come to the library they intended to
spend many hours, in part because they had to go to the effort to drive and find a place to park, and didn’t want to make several back and forth trips (and risk losing their parking space). Students who valued quiet as a part of their productive study spaces would choose the library if it was a contrast to a lively noisy (shared) home, but would choose studying at home over the library if they had a private room or lived alone. When driving to and parking on campus was perceived to be an inconvenience, students would make the decision to stay home, even if it was not the “perfect” place to study.

For students in urban commuter campuses, libraries can be a refuge. The majority of these students preferred libraries over other locations for studying (and sometimes sleeping), most often citing quiet and calm. Many of our libraries have quiet areas and not so quiet areas. Most of the urban students sought out the quiet areas in the libraries. One student preferred the library “because everybody else is so studious and studying, it puts me in the mood to also study and, um, focus.” This is in contrast, of course, to home environments where everyone else is not studying and often engaged in other distracting activities.

Students also had a marked preference for cubicles or carrels over tables in these libraries. Contrasting with the lack of their own space at home, library carrels provided that space: A carrel of one’s own. Students stated about the carrels: “I just have my own space” and “I have like my own little room. I can put my things around.” For some students, open tables for studying were yet another space they had to share. Describing studying at tables, one student commented, “I don’t feel like I have my own space to study. It feels like too many disruptions.” This is reminiscent of how students talked about their home spaces.

While enrollment has increased at CUNY, the size of their libraries has most often not seen a concurrent increase, and students mentioned overcrowding in the library as a problem. Even when that was the case, the library was still a central workspace for students.

**Conclusions**

Assessment approaches in higher education spaces such as libraries are frequently rooted in a perspective that frames students only through their identity as students. However, students are never only students, and our performance evaluation approaches need methods and analyses that make this clear and comprehensible. The holistic approach of the A Day in the Life Project helped us see the whole person and students’ multiple expressions of identity as they negotiated roles such as as a friend, employee, daughter, grandson, parent, sister, or cousin, in addition to student. All students--but especially commuter students at non-residential institutions-- were continually negotiating and navigating these identities throughout their day. The complexity of these identities means students were constantly layering tasks: They were studying on the way to work or on the way to pick up their little sister from school. They were completing an assignment as they helped their child do her homework at the kitchen table. They were posting to a discussion on the learning management system while working at their job. They were responding to a text message from their child’s daycare while in class. Understanding the complexities and realities of these taskscapes are critical to understanding the needs and priorities of our students and how to respond with services, resources, and spaces that are appropriate and sensitive to these realities.

This study also brings up specific questions of what libraries can do to help students regarding commute time, especially when driving is required and this time can not be simultaneously used for study, as it sometimes can on public transportation commute might. Commuter students occupy in an odd limbo between distance students (who never come to campus) and residential...
students (who live on campus), resulting in numerous associated issues. This might point to a particular need to have effective
digital places and services, as circumstances well beyond the library’s control might determine a student’s decision to stay home,
not brave traffic, not have to worry about finding or paying for parking.

In carrying out the Day in the Life Project we are fundamentally making an argument for open-ended and comparative
assessment of student experiences, and for bringing more holistic pictures of student life into conversations in libraries and higher
education about supporting and facilitating student success. For this reason, this study purposefully chose to take an exploratory
approach that did not focus on one part of the university, such as the library, but rather the webs of interrelated places and
activities that comprise students everyday educational experiences and are both internal and external to their institutions.
Moreover, because of its unique design, this study provides a rare opportunity for direct comparison of these experiences across
multiple types of universities, which will allow us to draw conclusions and make recommendations that might be broadly applied
by institutional policy-makers.

Notes
[1] Significant sections of this paper were previously presented at the 2016 ARL Library Assessment Conference and were
published in the conference proceedings (Asher et al., 2017).
[2] All ADITL Protocols were approved by the IRBs of the participating universities, with IUB acting as the lead university
(Protocol #1506148767, Principal Investigator, Andrew Asher).
[3] Sending and receiving survey responses was automated using the SMS functionality of the Qualtrics online survey software
platform.

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Institute of Public Anthropology, California State University, Fresno, Fresno, CA.

Mapping the physical and digital reading habits of Singaporeans: Findings from an integrated quantitative-qualitative study

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National Library Board, Singapore

Abstract
Global outlook on library visitorship and loans point to a trending down in physical visits and loans, whilst digital visits and loans are trending up. Singapore’s network of public libraries is not spared and has been experiencing the same phenomenon of either declining or slow growth in visitorship and loans in the recent years. An inaugural nation-wide population study was launched in 2016 to comprehensively understand the state of reading in Singapore, reading motivation and barriers to reading, lifestyle mapping, media technology habits, and information and knowledge seeking habits. This paper focuses on Singaporeans’ reading habits in the physical and digital format. The findings shed light on ways Singapore libraries can attract the general public to make use of library content and services, regain market share and remain relevant in the longer run.

Keywords
reading habits, population study, library, National Library Board, National Reading Movement, Singaporeans, Singapore

Background
The Singapore National Library Board (NLB) manages a network of 26 public libraries, the National Library and the National Archives of Singapore. In recent years, declining visitorship and loans have been observed. Public library usage in terms of physical visits and loans started to decline from 2013. Total visits, which include physical and digital visits, have been supported by the increase in digital visits to NLB’s digital platforms from the same year. However, even though this increase has contributed to an overall positive growth since digital visits were first tracked in 2012, it has compensated only to a small extent. On the loans front, since the introduction of loanable e-books in 2010, the take-up was slower than expected and failed to compensate for the bigger loss in physical loans.

In mid-2016, NLB launched a five-year National Reading Movement campaign to promote a culture of reading, and to support Singapore’s emphasis on life-long-learning. In conjunction with the launch of the reading campaign, an inaugural nation-wide population study entitled the ‘National Reading Habits Study’ was launched at the same time to comprehensively understand leisure reading habits among Singaporeans. The study would contribute towards a quantitative baseline of the state of reading in Singapore. This paper shares the methodology, findings and implications in the context of Singapore.

Purpose
The focus of the study was on leisure reading and included areas such as reading motivation and barriers to reading, information and knowledge seeking habits, lifestyle activities, media technology use habits among Singaporeans. Desired outcomes of the study included the identification of key drivers that pose downward pressures on reading, information and knowledge seeking and library usage; development of strategies to better meet the needs of Singaporeans; and nuance of the National Reading Movement’s initiatives for more effective engagement. Further, it was hope that
the findings could shed light on ways our libraries can attract Singaporeans to make use of NLB’s content and services, regain market share and remain relevant.

**Literature Review**

Investigation of trends in several English-speaking countries observes a similar experience. Physical visits at public libraries in the U.S.\(^1\), Canada\(^2\) (Toronto), U.K.\(^3\), and Australia\(^4\) have similarly declined. The increase in digital visits to their library websites did not significantly contribute to total visits. For the New York City Public Libraries\(^5\), physical visits have similarly declined while total visits seem to stabilise, helped by the increase in digital visits. Overall for the U.S., there is a downward trend in physical visits to libraries. Total visits to the U.K. libraries have been declining since 2009/10, with an indication of a plateau in digital visits. Both Toronto, Canada and Australia have a somewhat positive outlook where total visits have increased. Nevertheless, this growth is minimal.

The rate of growth for e-book loans, which started from a low base, has generally been high in the past few years. However, in absolute terms, e-book loans make up a small fraction of total loans due to its relatively small number. NLB’s experience is not dissimilar to trends in the U.S., Canada, U.K. and Australia where total loans have been on the decline. Nevertheless, globally, people are increasingly accessing library services via digital platforms. They are already open to new technological trends, such as the use of smartphones for mobile browsing of online content.

A U.S. survey (Pew Research Center, 2014) found that younger American Millennials – those aged 30 and under, were significantly more likely to have used a public library than older adults. Most Millennials were aware of the location of local libraries, but were unfamiliar with the services they offer. Millennials were more likely to have read a book in the past 12 months than their elders. They were also more likely to have used a library website, but claimed that important information was not available on the internet. Moreover, they did not necessarily believe that libraries have fallen behind in the technological sphere. Survey findings indicated that older teens (aged 16-17) were more likely to use public library books for research. They were also the only age group more likely to borrow than purchase books and get reading recommendations at the library. However, they less likely valued public libraries as a personal or community resource. College-aged adults (aged 18-24) were less likely to use public libraries than other age groups. Library habits and views of adults in their late twenties (ages 25-29) were similar to their elders’. Parents in their late twenties had a particularly high rate of library usage too. Overall, physical visitorship in American libraries fell between 2012 and 2013, but library website usage increased over the same period.

**Methodology**

*Definition of reading.* In the study, ‘reading’ is defined as having read any of the following types of materials for leisure within a 12-month period. Books include physical books, e-books and audio books. This covers both fiction and non-fiction books, but exclude textbooks. News refers to printed newspapers as well as online news. Online articles refer to articles, blogs or essays posted on social

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\(^2\) Toronto Public Library Ten-Year Trends in Library Usage: 2005 to 2014 (http://www.torontopubliclibrary.ca/content/about-the-library/pdfs/board/meetings/2015/apr20/19.pdf)

\(^3\) LISU’s UK Statistics: Public and Academic Library Statistics (http://www.lboro.ac.uk/microsites/infosci/lisu/lisu-statistics/lisu-uk-library-statistics.pdf)


media (such as Facebook, LinkedIn, Tumblr, Twitter) or websites. Magazines include both physical and digital magazines. Reports include but are not limited to research, company and trade reports. This study excludes reading related to communications such as emails and instant messaging (e.g. WhatsApp, Messenger, LINE).

**Research methods and scope.** The study was conducted in mid-2016 and employed quantitative and qualitative methods, i.e. a survey using a questionnaire and focus group discussions. This integrated method was used in order to study Singaporeans’ reading habits comprehensively. The survey ascertained Singaporeans’ behaviours, in key aspects such as reading frequency, reading format and genre, time of the day spent reading and place, average time spent, purpose of reading, sources of books, reading motivation and barriers to reading, lifestyle activities and frequency, media technology use habits and frequency, and information and knowledge seeking habits. The study was carried out in two phases – door-to-door face-to-face surveys, followed by a series of focus group discussions.

**Quantitative survey.** The door-to-door survey interviewed a representative sample of 3,515 Singapore residents aged 20 years old and above. This gave a margin of error of ±1.55% at 95% confidence level. The sample was representative of the Singapore Resident population, stratified by five key but non-interlocking variables – age, gender, ethnicity, residency status and dwelling type. Sample quotas by the five key variables, where sufficient number of cases in each cell, were applied to ensure representativeness of the sample. These quotas were derived based on the annual population statistics published by Singapore’s Department of Statistics. Where the proportion of any segment from the key demographic variables of age, gender and ethnicity was over- or under-represented by 3%, the data was weighted back to the population proportions for the segment.

Only Singapore residents were interviewed, as NLB’s libraries primarily serve its resident population. Singapore residents refer to Singapore Citizens and Singapore Permanent Residents. Singapore Permanent Residents are residents who have been granted permanent residency by the Singapore Government. Additional demographic information collected include marital status, highest attained education level, occupation category, whether they have children and the age groups they belong to, monthly household income and occupation group. To ensure representativeness by geographical location, respondents were recruited from all sub-zones across Singapore. Quotas were tracked closely during the fieldwork period. An additional survey sample interviewed 485 teenagers between the ages of 13 and 19 years old. However, the focus of this paper is on adult Singaporeans aged 20 years old and above. This being a reading habits study, it excluded Singaporeans who are illiterate. Participation in the survey was purely voluntary.

**Focus group discussions.** A total of 18 focus group discussions with 163 adult participants were conducted between August and September 2016. The discussions sought qualitative explanation of reading habits, and included motivations and perceptions that drive reading and information and knowledge seeking behaviour. The scope also included perceptions and usage of the library and the library’s digital offerings. An additional 3 focus groups involving some 27 youths were conducted, which findings are not included in this paper. The discussions were conducted by experienced moderators. Each focus group had no more than ten participants, in line with industry standards.

In 2015, a Reach Index was developed by NLB to determine its unique reach of the Singapore’s resident population that it serves over a 12-month period (National Library Board, Singapore, 2015). Five indicators, namely the unique physical visitors to its libraries, active members, participants of its
programmes and/or exhibitions, users of its digital platforms, and volunteers who assist in library operations and the running of programmes, make up the composite index. Data was collected via an inaugural population survey with a representative sample of 4,000 respondents. From the survey, our network of public libraries was established to be NLB’s main touchpoint with Singaporeans. The survey determined that visitation was the highest among children aged 7 to 12 years. In general, those aged 19 and below and adults with young children were more likely to have visited our public libraries. Those who were less likely to have visited were the young adults without children, mature adults without children, adults with older children, as well as seniors. These observations were in some ways similar to what Pew Research Center (2014) found. With this knowledge, for the focus groups, participants were grouped into six distinct life stage segments. Participants were further segmented by whether they were current patrons or non-patrons. This would help NLB understand the needs of these two groups better. Children aged 12 years and below were excluded from this qualitative component due to their young age and ability to articulate their views. Discussions were conducted in the mother tongue language (of either Mandarin, Malay or Tamil) of the participants when necessary (such as among seniors).

Results

**Descriptive statistics.** The distributions of the survey respondents by age, gender, ethnicity and residency status are shown in Tables 1 to 4.

<table>
<thead>
<tr>
<th>Age</th>
<th>n</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 to 29 years old</td>
<td>746</td>
<td>21%</td>
</tr>
<tr>
<td>30 to 39 years old</td>
<td>624</td>
<td>18%</td>
</tr>
<tr>
<td>40 to 49 years old</td>
<td>711</td>
<td>20%</td>
</tr>
<tr>
<td>50 to 59 years old</td>
<td>665</td>
<td>19%</td>
</tr>
<tr>
<td>60 years old and above</td>
<td>769</td>
<td>22%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,515</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>n</th>
<th>% of Total</th>
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</thead>
<tbody>
<tr>
<td>Male</td>
<td>1680</td>
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</tr>
<tr>
<td>Female</td>
<td>1835</td>
<td>52%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,515</strong></td>
<td><strong>100%</strong></td>
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</tbody>
</table>
Table 3: Survey respondents by Ethnicity

<table>
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<tr>
<th>Ethnicity</th>
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</thead>
<tbody>
<tr>
<td>Chinese</td>
<td>2,713</td>
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</tr>
<tr>
<td>Malay</td>
<td>391</td>
<td>11%</td>
</tr>
<tr>
<td>Indian</td>
<td>306</td>
<td>9%</td>
</tr>
<tr>
<td>Others</td>
<td>105</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td>3,515</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 4: Survey respondents by Residency status

<table>
<thead>
<tr>
<th>Residency Status</th>
<th>n</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Singapore Citizen</td>
<td>3,178</td>
<td>90%</td>
</tr>
<tr>
<td>Singapore Permanent Residents</td>
<td>337</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>3,515</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Overall reading habits.** The survey found that 93% of Singapore residents read for leisure at least once within the past 12 months (see Figure 1). This includes reading books (physical, e-books, or audio books), magazines (physical or digital), newspapers or online news, online articles posted on social media or websites, as well as reports. Some 80% read at least a few times a week. This frequency is equated to a “habitual reading habit”. Analysis by age shows minimal variations (see Figure 2). The majority of university degree holders (87%) read habitually, while only 68% of those with primary school or below education have done so. Nearly 80% or more of Singapore residents across most dwelling types read at least a few times a week, except for those in smaller dwelling types. There is no significant difference between gender and ethnicity in reading frequency. In terms of time spent, 79% spend at least 30 minutes reading daily, regardless of whether it is during the weekday or the weekend.

![Figure 1: Frequency of reading in the past 12 months](image)

![Figure 2: Proportion who read at least a few times a week by Age](image)
When it concerns the place where respondents spend their time reading, most do so at home. Those in their 20s and 30s also read at work or in school during breaks, and on public transport. A higher proportion of 20 to 29 year-old readers read during breaks in the day and while commuting, compared to the older age groups. About 50% of seniors, i.e. those in their 60s and older read as part of their morning routine.

A deeper qualitative look indicates that most read in the comfort of home – when they have free time, at the start of the day, or before bedtime. Working adults frequently cited reading while commuting. However, for this working group, amount and frequency read depend heavily on the contents that are pushed to them. They might click on news or articles if the headlines or topics caught their attention or if the articles have many likes and share. Many are unable or unwilling to set aside reading time. Instead, reading happens randomly whenever they have free time.

**Types of material read.** When asked about the types of material read, the survey found that 68% of Singapore residents read news at least a few times a week, while 41% read online articles posted on either social media (39%) or websites (27%) (see Figure 3). In contrast, only 19% read books habitually, either in the physical or digital format. Essentially, news is the most common material that is read habitually, except for the 20 to 29 year olds where a larger proportion read online articles (see Figure 4). The survey also observed that a greater proportion of university degree holders read news, online articles and books habitually than those with lower educational levels.

![Figure 3: Frequency of reading by Type of material](image-url)
In explaining their reading behaviour, focus group participants highlighted that reading news is a must, as this allows them to keep up with what is happening and has an impact on their work. It is also a form of social currency, where not knowing the latest would make them appear out of touch, as well as not being able to contribute to “water-cooler talk”, and as a consequence, affects their social standing. As a 46-year old male said, “Not to appear like an idiot in front of all the people ...”.

When participants talked about reading online, they mentioned that this has also become a significant part of their lifestyle, as the internet is available all the time and they would regularly receive alerts about posts. Being online also links them to friends, like-minded people and interest groups. Moreover, the online content is directly relevant to them (e.g. they like the Facebook page of topics that they are interested in).

On the contrary, reading books is seen as an unnecessary activity, as they are already obtaining the latest information online. Books are associated with their past school days, which they have outgrown. Other reasons include the lack of energy after work to read books and the inability to focus. For some others, for a popular book, they would rather wait for it to made into a movie. Nevertheless, for the minority who do read books, it is a form of ‘me time’ and helps them to relax. To them, reading is an interesting activity that brings them into another world. They have also cultivated a habit of reading since young.

**Genre read.** The survey ascertained that 98% of readers read non-fiction topics. In alignment with most who mainly read news, almost all of the respondents choose non-fiction topics due to its practical nature. Top non-fiction topics are: Singapore-related information, health and fitness, politics and current affairs, travel and cooking (see Figure 5). In contrast, only 57% read fiction topics. In terms of age analysis, fiction reading is the highest among the 20 to 29 year olds, but the proportion decreases with age (see Figure 6).
Focus group participants shared that their inclination towards news on hot topics or areas of interest were due to the fact that such information are most readily available. This is either via their access of online news, free newspapers or the news are “pushed” to them through their social media account or other online mobile applications which they subscribe to. In addition, they read non-fiction topics more frequently for the new knowledge they could acquire. They seek facts based on needs such as a change in life stage (e.g. seniors reading on dementia, mothers reading about child-rearing), for travel (i.e. to plan for next holiday), as well as to learn more about hot topics that might affect them.

On the contrary, few read fiction topics, as it does not value-add to their lives, and they are not willing to invest time to read. They also feel that reading fiction requires more commitment, where they have to complete the entire book to fully enjoy the story. But, for the younger adults who still read fiction, they continue reading for entertainment (e.g. following favorite authors/series) and to follow up on movies so as to fill in the plot details not covered in the movie.

There are stark differences in topics read across age and gender. While young males read about health and fitness, as well as sports, older males prefer Singapore-related information and politics. In addition to information about Singapore and politics and current affairs, males with university degrees or higher education qualifications read about business and finance, as compared to males with secondary school education or below. Young females tend to read about lifestyle topics such as travel and fashion, beauty and grooming, while older females lean towards cooking, health-related and Singapore-related information. Females with university degrees or higher education...
qualifications read a wider range of non-fiction topics, while females with primary school education or below read mainly about cooking, Singapore-related information or health.

The fiction genres that are of common interest to males are mysteries and thrillers, humorous stories and jokes, and science fiction. In addition to these genres, younger males read graphic novels and comics. Females of all ages read mysteries and thrillers, as well as humorous stories and jokes. Females aged 20 to 29 years old also read romance and love stories.

**Reading books.** Among Singapore residents, 69% had read books in the past 12 months (see Figure 7). Of this group, 60% of those had read up to 5 books.

![Figure 7: Proportion who read books in the past 12 months](image)

The study also focused on understanding book reading in the physical and digital formats. The analysis determines that 95% of book readers read physical books, but a lower proportion, i.e. 41% read e-books, and an even lower proportion (9%) access audiobooks (see Figure 8). However, not unexpected, reading in the electronic format is higher for the 20 to 29 year olds.

![Figure 8: Format of books read in past 12 months](image)
Tests of significance between independent variables such as age, gender, ethnicity, education, life cycle stage, dwelling type, lifestyle activities and information-seeking behaviour and the dependent variable reading habits were carried out. Significant results (p<0.05) were observed, in particular for age and life cycle stage.

**Reading motivations and barriers to reading.** Singaporeans’ attitudes towards reading, their motivations to read and barriers faced via eleven statements were asked (see Figure 9). The top motivations to read across all age groups are that internet and digital devices have helped them to read more, and that reading is enjoyable and relaxing. The main barriers to reading are that people prefer to watch TV, DVDs or online videos instead of reading and that they tend to spend more time doing other non-reading related activities.

Factor analyses were additionally carried out. Three factors were derived, namely ‘Likes Reading’, ‘Reading is not stimulating’ and ‘Not enough time’. Key difference between habitual and non-habitual book readers vis-à-vis their attitude towards reading was observed. Nevertheless, this key difference mirrors the overall observations highlighted in the preceding paragraph. This difference is more salient amongst the 20 to 29 year olds. Factor analysis of lifestyle activities and book reading habits were also conducted, and similarly three factors were derived – ‘Visit book places’, ‘Going out’ and ‘Information seeking’. Non-habitual book readers tend to go out more often, and are searching for information online less frequently compared to habitual book readers. The results of the factor analyses are not surprising observations, but nonetheless noteworthy.

![Figure 9: Reading motivations and barriers to reading – Extent of agreement (in %)](image)

**Conclusions and Practical Implications**

In mid-2016, NLB launched a five-year National Reading Movement campaign to promote a culture of reading, and support Singapore’s emphasis on life-long-learning. The study is a key part of the campaign and has contributed towards a quantitative baseline of the state of reading in Singapore. The study concludes that the state of reading among adult Singaporeans is healthy.

From the insights gathered, it points to the importance of libraries ramping up appealing digital content offerings, including e-books. This is to cater to younger adult Singaporeans, who are more
inclined toward reading e-books and e-content. This would likely capture and sustain the mindshare of younger readers. Afterall, from NLB’s Reach Survey (2015), this is the group that are less likely to visit our libraries or make use of our digital content. Keeping up on offering attractive digital content is critical to libraries remaining relevant among this digitally-savvy group.

Second is the need to improve on libraries’ non-fiction collection and programmes, in light of the strong preference for non-fiction information due to its perceived practical value. The differences in genre read observed when the responses were cut by age and gender are practically useful. It would augur well with the different segments if the promotion of content, whether in the physical or digital format, aligns to their pragmatic interests. Customized approaches instead of a one-size-fits-all approach would likely appeal. In view of their non-fiction reading interests, efforts to expand adult Singaporeans’ reading habits to fiction topics need to take a measured approach instead. This is in light of the libraries now trying to regain the mindshare and market share among this group.

Third but equally critical point is to strengthen libraries’ capability to push content to readers, in view of working adults’ heavy dependence on content which is pushed to them as this is accessible anytime and anywhere via mobile devices. Instead of waiting for people to go to the physical libraries, libraries must transform itself to go to “where people are”. Again, this means providing attractive and useful digital content which people can comfortably access and view via their mobile devices.

The findings of this study has helped NLB determine the key drivers that pose downward pressures on reading and library usage. Most importantly, the study provided critical knowledge on ways to better meet the needs of Singaporeans and to nuance the initiatives of the National Reading Movement for more effective engagement. The study has been timely to help NLB formulate strategies to encourage reading and learning, and to attract more Singaporeans to make use of Singapore’s libraries and digital services.

Key performance indicators and targets have been derived to strive towards sustaining reading among Singaporeans, be it through better offerings in library content, programmes and services. Subsequent runs of the study are planned and will continue to track the state of reading, evaluate the effectiveness of the National Reading Movement and help NLB to further nuance our campaign strategies to meet changing needs. This will in turn help our libraries to remain relevant.

This study is the first in-depth study to ascertain the state of reading among Singaporeans. Deliberate efforts were devoted to determine respondents’ behaviours related to reading, lifestyle, consumption, information seeking and media usage. The survey eschewed questions that were “opinion-centric” and as such the findings have practical implications on future directions to transform our libraries into the ‘Library of the Future’. The study also provides fresh empirical findings on reading habits from an Asian context.
Acknowledgement
The author would like to thank the research team at the Business Analytics, Knowledge & Risk Management Department of the National Library Board, Singapore (NLB), in particular Ms Renee Foo, Manager, who contributed significantly to the scope, design and analysis of the study. The guidance of the senior management team at the NLB were equally valuable and had made the study robust and authoritative to determine the state of reading among Singapore residents.

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References


Measuring Information Literacy Outcomes
Process as Value Added

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Introduction
In 2014, the University Library at UC Santa Cruz implemented a locally developed online tutorial for the EBSCO Academic Search Complete (ASC) database as the primary method for supporting library instruction for the campus's Composition 2 curriculum. During the 2015/16 academic year, the library's Undergraduate Experience Team (UET) collaborated with the Writing Program and the Office of Institutional Research, Assessment, and Policy Studies (IRAPS) under the aegis of the Association of College and Research Libraries (ACRL) Assessment in Action Program to measure the effectiveness of this tutorial at supporting the development of student research skills. The online tutorial we sought to measure had been designed to replace in-person, one-off library instruction sessions for Composition 2 that we had supported for many years. It reflected the concepts and exercises that the library had covered in those sessions. We worked with our project partners to reach a common understanding of information literacy (IL) learning outcomes and evidence of proficiency in them. We developed a rubric that we applied to learning artifacts for five classes in fall quarter 2015. What we learned helped us substantially revise the online tutorial, but the work with our partners to model standards-based IL learning outcomes is of perhaps greater value as the campus works to define IL program learning outcomes across the curriculum.

Literature Review
Collaboration
Hoffmann and LaBonte (2012) collaborated with Writing & Rhetoric program faculty to assess IL levels for first-year and third-year undergraduate students by creating a rubric to facilitate assessing students' writing assignments. Using an “authentic assessment approach” (i.e. examining students' real-world application and understanding of information rather than modular tasks), they found that librarians and faculty shared the same IL goals for students. They examined assessment rubrics from other institutions, linked the developing rubric to campus learning outcomes, and normalized the grading process—steps that UET undertook as well. They found that student IL proficiency levels might be reliably measured by assessing writing assignments. They also found that targeted rubrics could be an effective assessment tool.

Rubrics
Turbow and Evener (2016) focused on the work of graduate students in Health Sciences rather than that of first-year undergraduates. They pointed out issues of rubric development common across disciplines and academic levels: the validity of the rubric to measure what is intended, and the reliability of scorers to consistently apply assessment criteria. Turbow and Evener gave an analysis of the value of rubrics to
the assessment process, described the rubric norming process, and addressed challenges to inter-rater reliability for different types of student data.

Belanger et al. (2015) describe the massive Rubric Assessment of Information Literacy Skills (RAILS) project, conducted over a five-year period across nine disparate academic institutions. The use of rubrics is demonstrated not only as a tool for librarians and faculty to assess the work of students, but also as a means to communicate to students what they need to learn, thus facilitating self-evaluation, direct feedback, and making scores more meaningful. Setting out in great detail the entire assessment process from selection of assignments and rubric creation to rubric norming and application of findings for assignment and assessment improvement, they found that working collaboratively with faculty is useful both in the assessment of information literacy and research skills and in the development and use of rubrics, the latter of which led most of the institutions’ stakeholders to closer collaborative partnerships.

Gola et al. (2014) took a different approach by partnering with their campus Director of Assessment and Accreditation Services for General Education from the Office of Institutional Effectiveness in an accreditation-required project to assess the information literacy of graduating fourth-year students across the institution. They found the application of rubrics crucial to evaluating the use of information in student papers, as reflective of current instructional practices. Consequently, assessment results can be used to identify IL competencies on which students scored lower to help create corresponding, targeted learning outcomes and further engage with faculty and other campus stakeholders on the incorporation of information literacy into the curriculum by both librarian- and faculty-led instruction.

Oakleaf (2009) highlighted the advantages of rubric-based assessment over fixed-choice, test-based measures of IL. The piece offered a thoroughgoing introduction to the concept, value, and application of rubrics for assessment, emphasized the need for librarians to take a rigorous approach to the methodology of rubric creation and—most particularly—inter-rater reliability, methods of assurance of which are detailed at length. The value of librarian training was stressed as a prerequisite for consistent and accurate application of rubrics.

Rinto (2013) used a rubric to assess the extent to which students across a vast landscape of Composition courses at her institution were applying the Currency, Relevance, Accuracy, Authority, and Purpose (CRAAP) criteria in assembling their annotated bibliographies. Rinto employed Mertler’s seven-step model to guide the rubric development process. She applied her institution’s IL learning outcomes for Composition courses, mapping these to the ACRL Information Literacy Competency Standards. Similar to UCSC’s experience, Rinto found some of these criteria (Relevance and Authority) taken in account by students, while others were much less so. The process of training scorers to ensure inter-rater reliability was acknowledged as less than successful.

A commonality across all of these studies is that librarians reaped unexpected benefits of establishing greater collaborative ties with their classroom faculty for a deeper and shared understanding and articulation of IL goals, and reinforcement of the centrality of the library to campus instructional efforts toward IL.

**Methodology**

All of the project partners were committed to supporting IL development, but each articulated evidence of such development differently, according to the standards and jargon of their communities. We recognized that we would need to agree on a shared model of IL, develop a common vocabulary, and create learning outcomes that were relevant to each stakeholder’s community of practice. Jastram et al. (2014) showed that broad collaboration had the potential not only to improve the assessment instrument but also to help all participants arrive at shared IL goals through productive dialogue.
During the summer and early fall of 2015, we built a shared understanding of measurable outcomes by creating a matrix of ACRL Information Literacy Competency Standards, Writing Program course learning outcomes, and ASC tutorial elements. This matrix was our Rosetta Stone. It allowed us to start building a rubric based on one national standard and do so in a way that met the needs of our project partners.

The rubric we developed addressed seven competencies across three domains: three each related to developing a research strategy and managing search results and one that addressed satisfying the instructor’s assignment requirements. Its development was very much an iterative process that covered several meetings with project partners.

### Figure 1. Rubric elements

<table>
<thead>
<tr>
<th>Standard</th>
<th>Evaluation criteria</th>
<th>Beginning</th>
<th>Developing</th>
<th>Proficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>K2: The topic has a manageable focus (ACRL Standard 1, indicator 1.d)</td>
<td>Focus topic to manage search results</td>
<td>Topic is unfocused, unclear, too broad or narrow</td>
<td>Topic is somewhat focused</td>
<td>Topic is sufficiently focused</td>
</tr>
</tbody>
</table>

If the research topic is not at the “Proficient” level, provide a comment about what influenced your evaluation.

We performed our data collection during fall quarter 2015. Four sections of Writing 2 and one section of Core 80B—115 students in all—participated in this project. UC Santa Cruz undergraduate students are required to complete Composition 2 prior to their seventh quarter of enrollment. Students who satisfied the University’s Entry Level Writing Requirement (ELWR) prior to matriculation usually enroll in Core 80B during their first quarter. Those who did not satisfy ELWR prior to arrival take one or more preparatory classes before enrolling in Writing 2. Both pathways satisfy the Composition 2 requirement.

Participating students took the library online ASC tutorial before starting work on their class research papers. They then completed a research process questionnaire and submitted a list of cited works for that assignment. The students completed the questionnaire using online Vovici survey software provided by IRAPS. UET used the same software to score the student-submitted data. We entered each student’s unique identification number and their questionnaire responses pre-populated our rubric scoring instrument.
In winter quarter of 2016, UET undertook a rigorous normalization process to ensure all scoring team members applied the rubric consistently. Writing Program and IRAPS project partners were not included in this work because of the logistical challenges of coordinating so many schedules for normalization exercises and scoring sessions. The first practice scoring exercise used a small subset of results, with each team member scoring the same assignments independently. Variances in ratings were then identified, and differences of process, interpretation, or other disagreements were discussed at length. We created a stepwise set of instructions for scoring each exercise and a glossary of terms to apply to ambiguous data. We performed additional practice scoring exercises in our assigned teams until we reached a common understanding of how to apply the rubric. This helped us minimize subjectivity—despite working with qualitative data—and to get a more objective comparison of results across all sections.

The normalization work was more demanding and time-consuming than anticipated. We allocated two weeks in our project plan for normalization; it took six. Once we set a proper foundation, the actual work of scoring was relatively quick and straightforward. We created ten two-person scoring teams using each unique combination of the five members of UET. Each librarian was assigned to four different teams and served as team leader for two of the four teams they were on. Each team met in person to score student data and held one another accountable for adhering to our agreements. Each student’s data were also evaluated independently by two teams that did not have any members in common.

**Findings**

Students demonstrated proficiency in two of the seven measures of information literacy and development toward proficiency in the other five. They were good at articulating an information need and in selecting the kinds of sources that satisfied the requirements of the assignment. They were less adept at selecting appropriate resources for their searches, translating their information needs into effective keyword searches, achieving a manageable search focus, and differentiating between scholarly and popular sources.
Only one of the five class sections in this study was a Core 80B class. Those students are mostly freshmen in their first quarter of study. They demonstrated less proficiency than their Writing 2 peers at identifying the database or resource where they discovered their cited sources. They were also less likely to use library databases or resources to find relevant sources. This surprised us because these are high-achieving students—those best prepared to write at a university level at matriculation. Of course, proficiency at written English does not necessarily correlate with a high level of information literacy, and the sample size (one out of twenty-six Core 80B classes in fall 2015) is too small to generalize. However, we suspect that first-quarter college students may simply be less familiar with university library resources in general and our library’s resources in particular. This merits further investigation. It has already informed our approach to marketing library resources and services to first-year students during summer orientation and fall welcome week.

Some of the tutorial elements could be linked directly to rubric outcomes; others could only be linked to one of the three rubric domains. The original ASC tutorial was written before this deep collaboration with the Writing Program and IRAPS. It was not written to measure these outcomes, but rather to render electronically what had been the core of a long-established, in-person, constructivist approach to one-off instruction for Composition 2. It is not surprising that the tutorial was limited in its ability to measure learning outcomes that had not been articulated before its creation.

The work to create a shared understanding of information literacy learning outcomes that was relevant to the library, to Writing Program faculty, and to the campus department responsible for demonstrating compliance with accreditation standards helped us to develop a strategy for recreating the tutorial and, more importantly, for contextualizing information literacy for Composition 2 as the foundation for articulating IL course and program learning outcomes generally.

Librarians at the University of California are not members of the Academic Senate and therefore lack a direct voice in policy setting for information literacy in the curriculum. We have been strong IL advocates, but our success has been variable across departments and often driven by working relationships between librarians and individual faculty members. Learning outcomes are often articulated at the capstone level by program and those related to information literacy or “research skills” have not been consistently tied to any national standard.

We were fortunate to work with the Writing Program while they were conducting a rigorous review of their program learning outcomes. They have since adopted standards-based IL outcomes for Writing 2 that take effect in fall 2017. This foundation gives us a much-needed framework for scaffolding information literacy up the curriculum to the capstone level. Our next opportunity is to engage with the Disciplinary Communication (DC) curriculum. All upper-division students are required to take a DC
course to situate themselves in the discourse of their chosen field. Our goal is to work with faculty to model standards-based information literacy outcomes for the various DC courses. This has the potential to bring us closer to consistent capstone IL learning outcomes based on a national standard.

We entirely rewrote the ASC tutorial that supports Composition 2 using the lessons learned from this project data. We launched the new version in time for summer session 2017 Writing 2 students. We look forward to working with our Writing Program and Core 80B partners to assess the effectiveness of the new instrument.

**Conclusion**

We carried out this assessment project during a time of heightened campus attention to program learning outcomes, information literacy, and a newly articulated strategic goal around student success. The University Library had recently established the Undergraduate Experience Team to assess undergraduate research needs and make evidence-based changes to learning and instruction tools. The Writing Program had been using a new library online tutorial to support student research assignments for over a year—a tool that had yet to be rigorously assessed. They were simultaneously reviewing long-standing program learning outcomes. The Office of Institutional Research, Assessment, and Policy Studies was documenting compliance with and promoting broader adoption of accrediting body recommendations with respect to program learning outcomes. Our collaboration advanced the immediate needs of each of the project partners, helped us develop a better, shared understanding of information literacy, and contributed to building a culture of assessment on campus.

This campus culture of assessment, and the library's emerging place in it, allowed us to establish partnerships that placed the library in an active and central role supporting student success. The project helped us to gain a foothold with broader faculty efforts to describe or measure IL outcomes. The UCSC University Library is much better positioned to support information literacy and student success with the online research tools we provide.

**Project files**

Our scoring rubric, process worksheet, other supporting documents, and project poster may be viewed at: [http://tinyurl.com/ucsc-aia](http://tinyurl.com/ucsc-aia).

**Acknowledgments**

The University Library is indebted to our indefatigable project partners. Tonya Ritola and Terry Terhaar from the Writing Program and Anna Sher from the Office of Institutional Research, Assessment, and Policy Studies were vital to all phases of this work. We would also like to acknowledge faculty members Lindsay Knisley and Mark Baker for integrating our assessment project into their courses.

This project was part of the program “Assessment in Action: Academic Libraries and Student Success” which was undertaken by the Association of College and Research Libraries (ACRL) in partnership with the Association for Institutional Research and the Association of Public and Land-grant Universities. This program, a cornerstone of ACRL’s Value of Academic Libraries initiative, was made possible by the Institute of Museum and Library Studies.

**Bibliography**


Negotiating change

Satu Bohm, Karin Byström, Petter Nerelius, Linda Thorn

Uppsala University Library

Introduction

Uppsala University Library is one of the major research libraries in Sweden, with a wide range of specialties - old collections, digital repositories and current support to faculty and students. The library provides library services to 9 faculties with 7000 employees and nearly 44000 registered students. The library has 11 different subject libraries in the Subject Libraries Department. In addition, the library has a Cultural Heritage Department, a Library Support department and an Administrative Department. The total number of employees in the library is approximately 200.

In the last 18 month the library has gone through a re-organization program with the aim to make to library more united. The re-organization was done in several steps and the program included empowerment of employees, leadership and processes. Library units were merged and three processes introduced; Media and Collections, Study and Research Support and Information Services. A matrix organization was thus created. The change is among the most comprehensive that the 400-year-old library has undergone.

The reasons for the re-organization can be summed up in four major points: stronger branding of the library, better service to users, better use of employee skills and adapting to doing the same amount of work on a smaller budget. With the new organization the library would work more effectively and use the resources in a better way.

Within the processes, three organizational development projects have been undertaken: the digitization workflow, new working methods in library instruction and management of the virtual reference desk.

Change leadership in the new matrix organization has offered challenges. Different approaches have been tested to find the best ways for collaboration and communication. This paper will describe how the library has developed ways of leading change by involving employees and managers at different levels in the change process. It focuses on change management in a matrix organization based on our own reflections as Process Managers and Program Leader.

Change process model

There are several models that could be used as a framework to understand and analyse organizational change and change leadership. One of them is Kotter’s well-known eight-stage change process. In this paper we have been inspired by Kotter’s model as a way to structure the analysis rather than an as an empirical method. The model has been interpreted in different ways and we have chosen to use the stages as defined by Smith (2011):

- Establish a sense of urgency
- Form a powerful high level coalition to lead and guide the changes
- Create a vision of the organization’s future
- Communicate that vision widely, repeatedly and consistently
- Empower people in the organization to act on the vision
- Plan for visible short-term performance improvements
- Consolidate improvements and produce more change
- Institutionalise new approaches
Preparing for change

A vision and the urgent need for change were presented by the management in 2014. Four main reasons for the re-organization were pointed out: stronger branding of the library, better service to users, better use of employee skills and adapting to doing the same amount of work on a smaller budget. The aim of the re-organization was to make the library more united – one University Library.

The vision and the four main reasons for re-organization were communicated repeatedly and consistently by the management to all employees at information meetings, through blog posts with discussion forums and e-mail. This helped the organization see the need for change and the importance of acting quickly thus preparing the organization for change.

The vision and the urgent need for change needed to be presented not only to library employees and leaders at different levels but also to other stakeholders. However, for a successful continuous change process, we experienced that employees and managers were crucial groups.

The re-organization had an impact on work environment, leadership and processes. A holistic view on all these aspects was necessary for a successful change management process. To make sure that that all parts of the re-organization was considered the library management pointed out a group with the mission to coordinate all parts in a change program. A Program Leader was assigned to coordinate the work in the fall of 2015. In January 2016 three Process Managers were added to the group. In this way a coalition to lead and to work with the change processes had been put together.

Starting the change process

In order to get started with change in the processes, three process mapping projects were established in October 2015: the digitization workflow, working methods in library teaching and management of the virtual reference desk. The process began by setting up broad working groups for each mapping with staff from all parts of the library. The groups had the goal to present new workflows and services, and they had a high level of freedom. In this way employees in the organization were empowered to act on the management’s vision.

The groups consisted of people who in many cases had not worked together before. For the digitization mapping, staff from all the different parts of the process was included: metadata, conservation, imaging and publishing. In the library teaching mapping group, both experienced and new library teachers were included. In the early stages, the groups needed a clear leader and a clear purpose and goal. At this initial stage, the Program Leader led the working groups and facilitated workshops in all three mapping processes, thus involved in shaping all groups and their future working methods.

At the start it was necessary to create clarity about the role of members in the working group. Since this was a new working method within the library, many group members were unsure about their role and expectations on contribution and participation in the group. The group leader started by presenting the goals and working methods which the group discussed and agreed on. A lesson learned is that we should have discussed on a deeper level how each person in the group could contribute to the goals. If we would have devoted more time to this at the beginning, we would have been able to discover and deal with the uncertainties at an earlier stage.

The groups started by mapping the process area and defining it against related areas. Needs and problems of the stakeholders were analyzed. In this way the group could identify problems that needed to be solved and got a starting point in finding new workflows. The group also took into account goals and regulations that affected the process as well as the number of employees involved. The meetings were designed as workshops with a high degree of creativity and many open discussions.
Mapping in a working group

Through analyzing and describing a snapshot of the current situation in the three processes the working groups created a readiness for the next step in the change process.

To give the groups the best possible conditions to work and to promote creativity it was important for the group leader at this point to create a trusting and safe climate in the groups. This was a success factor in the change process. A challenge for the group leader in the beginning was to establish a new way of working with organizational development at the library. One key concept for success was enough time for discussions and high sensitivity to when there were problems in the group that needed to be resolved, such as disagreement about a proposed solution.

Establishing a joint group leadership

The leader and facilitator for all three working groups was initially the Program Leader. From January 2016, Process Managers were expected to join and lead the already existing working groups.

To shift group leader in the middle of the working process was a challenge which we didn’t quite manage to solve. Management wanted to see the Process Managers as leaders for the working groups and the mapping of each process. Process Managers occasionally felt uncertainty about communicating about the process mapping and the results due to uncertainty about ownership over the process mapping work. This somewhat complicated situation was solved by establishing a joint group leadership.

By establishing a strong collaboration between the Program Leader and the Process Managers, there was no clear break in leadership for the groups, which thus could maintain focus on the task. Between the workshops the Program Leader and the Process Managers analyzed the results from the workshops together. The ambition was to create a common understanding of the work and build trust in each other. We also analyzed group processes and thereby increased our awareness of the development of the working groups and our own leadership. Gradually we built trust in each other as leaders and we did not feel that there was a problem who actually led and facilitated the workshops. In addition to being a co-leader, the role of the Process Managers was also to be an observer and to take into account what happened in the group during the workshop. By thinking together, we could develop our leadership and achieve a better result.
Leading change is a challenge even for an experienced leader. The Process Managers all had some leadership experience but had not been responsible for any project of this size previously. Step by step we created a strategy to lead the working groups through the change and created a joint change competency.

**Negotiating change**

Change management affected not only Process Managers or the Program Leader. Change concerned all leaders and managers in the organization. We had to be extra observant at communication because none of the managers were directly involved in the concrete mapping work and developing of new workflows in the processes.

Negotiations about the changes had to be held at all levels of the organization. All managers and leaders meet regularly for discussions. Problems, options and solutions in the process mapping or related to the re-organization were discussed by leaders and managers regularly.

To gain approval for the changes in the whole organization, all processes also had reference groups where new ideas and proposals were discussed. A total of 60 staff was involved in the reference groups. Information meetings for all employees were also arranged. The reference groups and information meetings played an important role. By continuously receiving information about the work and having the opportunity to comment, the process work was integrated into the organization.

The aim was to reach a broad acceptance of the changes and during the discussions they developed a joint understanding of the need for change and for the chosen solution. This meant that the pace of change was slower than expected from start, but also that the changes at the end where easier to implement. The alternatives presented to the library management were well thought-out and motivated. One lesson learned, however, is that no matter how many discussions are held, everyone will not agree that the change is necessary or correct. A challenge for the leader lies in choosing the right time for a final proposal and decision.

**Change resistance**

During the discussions in the working groups we discovered that members had interpreted the management’s vision and goals differently, and this had consequences for the group’s work.

Based on the initial snapshot of the current situation the working groups explored different solutions and scenarios that could help solving the needs of the stakeholders. This was not an easy undertaking since the expected outcome was unclear both for the working groups and for the group leader at this time. During discussions, we discovered that the vision *one library* and the four major points needed to be further broken down within each area. When we began to talk about teaching or virtual reference services in the working groups, there were different opinions about the desired results of the change.

In the group who worked with library teaching, a clearer direction from the management was openly requested. There were different views within the group about how to develop library teaching and it was difficult to reach an agreement at first. There were different opinions on what constitutes good service and quality in teaching and if the librarian should be a subject specialist or a general information literacy specialist. When the Process Manager presented a fictive scenario that could be interpreted as a way to shrink the library teaching group into a smaller teaching team without a permanent workplace it led to strong resistance. But the fictive scenario also turned out to be an opening to a new type of discussions where we were able to point out the different opinions and work on resolving them. We discovered that the way the group had interpreted the vision and four reasons for re-organization had an influence on their readiness for change.

Similarly, there was a discussion in the virtual reference working group that expressed the fear that a proposed change would mean that all staff would rotate between the information desks of all the different subject libraries. This triggered a discussion about staffing of desks, but the problem actually originated in different views on quality and the role of the librarian. When we discovered that we were talking about different things, we could focus on finding a consensus about the purpose of the change.

Clarifying the different views opened up for a deeper discussion about alternatives and the groups could compare pros and cons and find different solutions. To think together about different scenarios was one way to reach consensus and find a solution. In this way we were able to follow up and actively work with the resistance in the working groups.
At the reference group meetings, we also invited to open discussions about scenarios, such as the virtual helpdesk. At information meetings we were able to pick up questions from employees who were not included in any workgroup or reference group. In this way we were able to involve as many employees as possible in the change process. Another important group was the managers who lead the change in daily work and therefore it was important that we reached a consensus on the change. Discussions with managers were primarily held at joint meetings for all leaders and managers but we also met individually or in smaller groups of managers when needed. Despite this, it was difficult to keep all managers informed and included in the change process.

For some employees, we could see that the resistance decreased as soon as a decision was made by the library management. While the issue was still up for discussion, there was an open negotiating position and co-workers wanted to influence the decision as much as possible. However, when the management had stated their point of view, employees that previously opposed to the change accepted and participated actively in the implementation.

Conclusions
In this paper we have described the re-organization program at Uppsala University Library and the implementation of new working methods. We have focused on some perspectives of change management such as group leadership, change resistance and negotiation.

In anchoring change at all levels from highest management to employees we believe negotiation is a key concept. Openness for discussion contributes to a feeling of being included amongst employees as well as management at all levels. Negotiating change also guarantees quality and substantiated decisions from both a user perspective and an organizational perspective. Discussions have also been a way of using a reflective practice around goals, effectiveness, working methods and leadership. Negotiating change is not a fast track to results but we are convinced that anchoring change at all levels is a key concept for long-term success. Another success factor has been a reflective joint change leadership between the Program Leader and the Process Managers.

There is still much work to be done and many changes ahead. The re-organization and the three processes have started a chain reaction of changes, both in the day-to-day work, in collaboration and in decision making. Three implementation projects are still up and running and eventually we will work on evaluation and improvement of the new working methods and services that we have established. It is also important to continue to improve our change competency as leaders and co-workers and we believe that some of the key components for success will be continuous empowerment and trust.

References


One small step: developing a framework for assessing 
Australian higher education libraries

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Introduction
Performance measurement has become a ‘hot topic’ for Australian academic libraries. A greater focus on accountability within the Australian higher education environment and the need to demonstrate how academic libraries contribute to student success have changed the way in which Australian academic libraries gather and use data to measure performance, and indeed the performance measures they employ. The changing role of the library as a partner in learning and research can no longer be measured solely by counting the number of resources, loans, downloads, visits, enquiries or classes; quantitative data alone does not sufficiently represent the complexity or the influence of the library on student outcomes, or clearly articulate the library’s contribution to the university’s goals and strategies.

Australian academic libraries have recognised the need to transition from traditional usage statistics to more strategic performance measures which are aligned with the goals of the university, and the challenges of articulating the impact that libraries have on students and scholars. As Australian universities are increasingly required to measure, compare and openly report their performance, Australian academic libraries need to demonstrate their overall contribution to the organisation and its goals and strategies. In response to these challenges, the Council of Australian University Librarians (CAUL) has developed principles and guidelines which can be used by academic libraries to measure and benchmark their performance.

The Australian higher education context

Australia’s first clearly defined quality assurance policy for higher education was established by the Commonwealth Government in 1991 (Vidovich, 2002) to improve quality and accountability in Australian universities. Since then, quality assurance in Australian higher education has continually evolved, with governments committed to improving quality assurance and performance measurement. The Tertiary Education Quality Standards Agency (TEQSA) is the independent national regulator of the higher education sector in Australia, with the role of assuring the quality of Australia’s large, diverse and complex higher education sector. The Australian Higher Education sector now has a clear quality framework and set of standards for measuring performance and adherence to performance indicators, the Higher Education Standards Framework. TEQSA ‘registers and evaluates the performance of higher education providers against the Framework’ (Australian Government, 2012). The Higher Education Standards Framework (Threshold Standards) 2015 (Commonwealth of Australia, 2015) provides a legislative instrument that must be complied with by all providers in order to participate in Australia’s higher education system.

The Australian government has recently announced plans to introduce performance funding for Australian universities as part of a reform package for Australian Higher Education (Australian Government, 2017). Indicators will be aligned with the higher education sector’s Quality in Learning and Teaching (QILT) indicators (Social Research Centre, 2017) and linked to institutional performance metrics.

Performance measurement in Australian academic libraries

Australian academic libraries have long recognised the importance of accountability and performance and the benefits of standardised approaches to the collection and analysis of data. Since 1969, the Council of Australian University Librarians has centrally collected statistics from Australian academic libraries; since 2001, many university libraries have conducted a common (although not prescribed) survey of student satisfaction. In 2000, the ‘Best Practice for Australian University Libraries’ project was funded by the Australian government under the Commonwealth Department of Education, Training
and Youth Affairs Evaluations and Investigations Program to investigate and document best practice activities in Australian academic libraries. The outcome was a set of best practice guidelines (Wilson, Pittman & Trahn, 2000) drawn from relevant best practice activities in use in Australian and a selection of overseas academic libraries. Since the release of the latest version of the Australian Higher Education Standards Framework (Threshold Standards), academic libraries have also applied these standards to measure compliance and alignment, evaluate performance, benchmark and identify gaps (Owen & Lasserre, 2016).

Over the last decade, a number of Australian library sectors, including special libraries (ALIA, 2010), public libraries (ALIA, 2016) and vocational education and training libraries (ALIA, 2016) have developed standards and guidelines specifically for their sectors. Until recently, Australian academic libraries did not have a common set of standards or performance measures for the sector. In the interim, standards developed by overseas associations, such as the US Association of College and Research Libraries Standards for Libraries in Higher Education (Association of College and Research Libraries, 2011), have been employed and adjusted as required to reflect the Australian context. The international standards ISO 11620:2014 Library performance indicators and ISO 16439:2014 Methods and procedures for assessing the impact of libraries ((ISO, 2014a; 2014b) have also provided valuable guidance to Australian higher education libraries in the assessment and measurement of the impact of academic libraries, and provided a catalyst for a proposal to develop a set of standards for the Australian higher education library sector.

Developing the Principles and Guidelines for Australian Higher Education Libraries

In 2014, a proposal to develop a set of common standards for Australian higher education libraries was presented to the Council of Australian University Librarians. The Council agreed that Australian higher education libraries need to be able to provide evidence, data and information to demonstrate the attainment of standards, recognising that the development of such standards would be a significant body of work. The majority of members supported a principles-based approach, rather than standards, which would be less prescriptive, aspirational and provide more flexibility to account for variation within institutions. It was recommended that these principles align with the Australian Higher Education Standards Framework (Threshold Standards) 2015 and consider existing standards and guidelines in other library sectors and overseas. It was also strongly recommended by the Council that these principles be developed in with input from university and government decision makers and stakeholders such as sectoral and professional groups and representatives of student associations, as well as from university librarians. The engagement of decision makers was deemed to be critical to ensure the principles reflect an external perspective and could not be viewed as libraries setting their own standards; as these principles were being developed to articulate the alignment of higher education libraries with, and the value of these libraries to, the university, it was important to have broad university engagement in the development process.

The process of developing the CAUL Principles and Guidelines for Australian Higher Education Libraries was thorough and undertaken by a consultant with experience in the higher education sector, Helen Darch, under the direction of the CAUL Quality and Assessment Advisory Committee. The process began with a desktop review of existing standards, principles and guidelines for the Australian education sector and Australian and international library sectors plus a selection of strategic plans from Australian universities and their libraries. This review informed the development of a number of questions which were then posed to selected university and higher education sector leaders during a series of interviews. These interviews asked interviewees to explore the potential characteristics of the university library of 2020, seeking to develop principles and guidelines which will be relevant not just for the present but into the future and, given these characteristics, what principles and guidelines CAUL should be developing, why these are important (or not) to the university and how the contribution of the library might be measured. These interviews provided valuable input and helped to identify the principles which were most relevant to universities as well as the focus and form of the final document. Interviewees articulated the importance of the library’s performance measures aligning with those of the university. They were also clear that the document should outline principles, guidelines and examples of performance indicators rather than standards; indeed a number of interviewees stressed that CAUL should be careful not to present these guidelines as threshold standards, and advised against prescribing percentages or ratios (such as student/staff ratios) in the document even though other standards may contain these. It was agreed that the most effective form of performance indicators to include were ‘maturity’ indicators which provide a growth continuum to track progress as indicated in Figure 1.
STRATEGIC PRIORITY 1: Strengthening learning, teaching and research outcomes

<table>
<thead>
<tr>
<th>PRINCIPLE</th>
<th>GUIDELINES</th>
<th>SAMPLE INDICATORS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Principle 1.1</strong></td>
<td><strong>Guideline 1.1.3</strong> Stakeholder feedback and evidence inform planning, and help to shape library strategy</td>
<td><strong>EMERGING</strong> Stakeholder feedback and evidence is collected</td>
</tr>
<tr>
<td><strong>Guideline 1.1.3</strong></td>
<td></td>
<td><strong>E VOLVING</strong> Stakeholder feedback and evidence is collected, collated, analysed and emerging issues identified</td>
</tr>
<tr>
<td><strong>Emerging issues</strong></td>
<td></td>
<td><strong>LEADING</strong></td>
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</table>

Emerging issues data from stakeholder feedback is used to shape action plans that address the issues identified. Feedback on action plans is provided to stakeholders.

Figure 1: Example of ‘maturity’ or growth indicators, CAUL Principles and Guidelines for Australian Higher Education Libraries

‘Socialising’ the Principles and Guidelines
The first draft of the CAUL Principles and Guidelines for Australian Higher Education Libraries was released for comment in September 2015. The challenges of developing a document to meet the needs of all thirty-nine Australian academic libraries were made apparent: some university librarians were very pleased to have a tool which would assist in performance measurement and benchmarking, some could not envision any benefit from using the Principles and Guidelines in their own libraries. The main comment received from those who could see no benefit was that the Principles and Guidelines did not directly articulate the value and impact of an academic library, however this was not the purpose of the tool. As Broady-Preston and Lobo (2011) note, using external standards is not the sole answer to the challenge of demonstrating the value and impact of a library service, however they may be a useful tool for building relationships with stakeholders and helping to communicate the value of the service, as well as improving the quality and the customer experience of the service.

To ensure that the Principles and Guidelines reflected the requirements of the CAUL membership generally and incorporated feedback from Australian higher education libraries, a comprehensive consultation process was undertaken. Feedback was collected from CAUL members over several months; after each round of feedback, an updated version of the Principles and Guidelines was released for further comment. While this meant that the development of the tool took longer than anticipated, it provided an opportunity to closely engage CAUL members in this process. This was important as it enable us to fully reflect the members’ views as ‘owners’ of the document and also to allow for input from practitioners in quality, assessment and evaluation in university libraries as they piloted the tool in their own organisations. The feedback received was valuable and resulted in refinements to the document.

The outcome: CAUL Principles and Guidelines for Higher Education Libraries
The outcome of this project is a tool which contributes to providing a quality framework for Australian academic libraries and can guide Australian academic libraries in assessment and evaluation. The CAUL Principles and Guidelines for Australian Higher Education Libraries (Council of Australian University Librarians, 2016) acknowledge the changing nature of academic libraries and their contribution to individual university and national higher education sector outcomes. The Principles and Guidelines aim to articulate how academic libraries add value through their alignment with institutional goals, leveraging the professional skills and digital capabilities of library staff. Like the U.S. ACRL Standards for Libraries in Higher Education (Association of College & Research Libraries, 2011), the CAUL Principles and Guidelines do not offer a ‘silver bullet’ for identifying and demonstrating value and impact but provide a framework for collecting evidence which enables libraries to describe and assess the role of a contemporary university library - a first step in moving beyond the collection of data to the articulation of value.
Originally it was anticipated that the Principles and Guidelines document would include detailed indicators; however, given the variation between Australian academic libraries and our experience in developing the Principles and Guidelines, it was agreed by CAUL members that it would be more effective for libraries to contribute to developing a central ‘bank’ of indicators related to the Guidelines which can be shared among CAUL members and allow for individual needs. The development of relevant indicators is an ongoing project and will lead to a set of maturity or growth indicators which will map to three stages – Emerging, Evolving, Leading - in a library’s progress towards fully meeting each guideline. We also plan to collect and share case studies of the use of the Principles and Guidelines in higher education libraries so that we have examples of the use of the tool which can be shared and contribute to improving performance measurement in our libraries. The case studies will enable us to share experiences of using the Principles and Guidelines and identify the strengths and weaknesses of this tool. The Principles and Guidelines will be regularly reviewed and refined to respond to changes in the higher education sector and government policy and incorporate feedback from members received through the case studies.

**Conclusion**

The development of the *CAUL Principles and Guidelines for Australian Higher Education Libraries* is only one small step in the journey to better measure and articulate the performance of our libraries. Higher education libraries in Australia will need to invest in further research and analysis to establish where and how the library impacts upon key university and government indicators such as student retention and completions, and will need to establish ‘proof points’ to demonstrate their effective and integral contribution to institutional performance. Academic libraries will also need to gather more meaningful and relevant data, both quantitative and qualitative, as the foundation for this analysis. This includes mining existing data and linking library data with local university datasets to support the broader analysis of data, as the University of Wollongong Library has done with the ‘Library Cube’ (Cox and Jantti, 2012).

We recognise that the *CAUL Principles and Guidelines for Australian Higher Education Libraries* is only one tool of many that Australian higher education libraries will use to measure and articulate their performance and value to their institution. As Tenopir (2013) notes, ‘Multiple methods should be used to measure value, including quantitative, qualitative, and a mixture of both. No one method stands alone and the choice of methods must be tied to the mission of each specific institution’. While the development of the CAUL Principles and Guidelines has been a small step in measuring the value and contribution of academic libraries, through the development of this tool we have raised awareness of the importance of identifying performance measures which relate to university and government strategies and have provided a catalyst for Australian higher education libraries to move beyond statistics in measuring performance.
References


Performance Measures for Liaison Librarians:
Documenting Impact to Communicate Value

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12th International Conference on Performance Measurement in Libraries:
Communicating value and leadership: from strategic to micro assessment

31 July-2 August, 2017, Oxford, UK
Performance Measures for Liaison Librarians: Documenting Impact to Communicate Value

Yelena Luckert, Daniel C. Mack, and Gary W. White

Introduction

A recent publication by the Association of Research Libraries (Jaguszewski & Williams, 2013), discusses how liaison roles are changing in research libraries. According to the authors:

“In the past, libraries focused largely on capturing the end products of scholarship, and the bibliographer model was designed to fulfill that goal. Then, the liaison model evolved, recognizing the need for advanced library research assistance within the disciplines and instruction in general library research processes for students. With increasing pressure on researchers to plan and manage their output, and a growing adoption of open access publishing, research libraries are now compelled to understand and support all processes of instruction and scholarship, which calls for an engagement model. An engaged liaison seeks to enhance scholar productivity, to empower learners, and to participate in the entire lifecycle of the research, teaching, and learning process.”

At the University of Maryland Libraries, a liaison task force was formed to discuss the changing nature of liaison activities and to develop guidelines and assessment tools to document these new roles.

Methodology

The liaison task force met over the course of an academic year to review existing research and to develop guidelines for changing activities. The task force developed measures to document the impact of these librarians’ work, and to communicate their value in five broad areas of responsibility:

1. Research Services
2. Collection Development/Collections Content and Access
3. Teaching, Learning, and Literacies
4. Scholarly Communications, Digital Scholarship and Data Management
5. Outreach and Engagement
In addition, professional development tools and guidelines were developed to implement expectations into the annual liaison assessment process. These new expectations are framed in three areas: institutional setting and environment, policy creation, and program implementation. The liaison task force report is available at: http://drum.lib.umd.edu/handle/1903/17456.

Institutional Setting and Environment

At the University of Maryland and at other research universities, the library and librarians are not merely resources for finding, accessing and evaluating information, but are taking on new, active roles in the areas of research partnership/consulting, teaching, knowledge creation, and digital scholarship and data curation. As part of this planning, the libraries must look to the broader institutional environment and strategic goals in order to map its own activities to the wider organizational mission. In order to do so, the libraries needed to identify both metrics and qualitative indicators for assessing liaison librarians’ work, and to plan how these performance measures can communicate impact to the larger organization. Five sample rubrics are listed below which we initially implemented (Mack & White, 2014). As discussed later, individual liaisons are encouraged to develop specific rubrics that are directly related to their own professional activities.

Research Services

<table>
<thead>
<tr>
<th>Expectation</th>
<th>Organizational Activities</th>
<th>Individual Activities</th>
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</thead>
<tbody>
<tr>
<td>Provide effective, responsive research/reference services via all media: telephone, chat, IM, social media</td>
<td>• Provide training programs, discussion forums, and avenues to share best practices</td>
<td>• Actively seek out ways to improve services</td>
</tr>
<tr>
<td>• Work with peers or mentors to develop plan for skill acquisition and improvement</td>
<td>• Schedule, plan, and promote availability</td>
<td></td>
</tr>
<tr>
<td>Offer individual research consultations/office hours</td>
<td>• Integrate into work plan/overall workload; training for best practices</td>
<td>• Be proactive and visible to assigned departments</td>
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<tr>
<td></td>
<td>• Create goal of meeting with each faculty member at least once per year</td>
<td></td>
</tr>
</tbody>
</table>
| Possess excellent customer service skills: civility, respect for diversity, approachability, timely responses/timely follow-up | • Create customer service training program with expectations and method of assessment | • Proactively seek to improve skills  
 • Develop good time management skills  
 • Elicit feedback and other assessments |
|---|---|---|
| Provide written/electronic reference guides | • Create standards for guides  
 • Provide infrastructure for creation, maintenance, and support | • Develop plan for creating and updating guides on a regular basis  
 • Stay up-to-date on resources and tools available  
 • Consult with peers and professional colleagues on best practices |
| Monitor and understand changes in the production of knowledge in subject disciplines as well as in general | • Encourage and support continuing education  
 • Support participation in college and department activities  
 • Provide forums for sharing new developments and gaining skills | • Monitor and read professional literature of the disciplines  
 • Participate in department activities  
 • Meet with faculty and students individually to understand research needs |
| Gather, document, and analyze data; conduct ongoing assessment of services | • Create framework for gathering and documenting data  
 • Provide central support for methods of assessment | • Work with administration and mentor to develop plan of assessment  
 • Develop plan for gathering and documenting activities and do so consistently |
## Collection Development/Collections Content and Access

<table>
<thead>
<tr>
<th>Expectation</th>
<th>Organizational Activities</th>
<th>Individual Activities</th>
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<tbody>
<tr>
<td>Meet with collegiate faculty to discuss collections needs</td>
<td>• Provide workshops/forums led by successful liaisons&lt;br&gt;• Provide educational opportunities to enhance subject expertise&lt;br&gt;• Hold meetings between library administration and college deans to discuss needs and strategies for resources&lt;br&gt;• Provide framework for best practices in how to approach/conduct meetings and in how to develop ongoing relationships</td>
<td>• Shadow other liaisons&lt;br&gt;• Seek out mentors who are successful liaisons&lt;br&gt;• Investigate individual faculty research interests&lt;br&gt;• Read college/departmental strategic plans&lt;br&gt;• Investigate departmental websites for news/changes&lt;br&gt;• Keep abreast of curricular changes/proposals and be proactive in suggesting needed resources&lt;br&gt;• Volunteer to attend departmental meetings&lt;br&gt;• Attend college/departmental functions</td>
</tr>
<tr>
<td>Advise the administration on future collections needs</td>
<td>• Provide a framework and schedule for regular communications&lt;br&gt;• Develop best practices for how this information is communicated and shared&lt;br&gt;• Develop standardized procedures that articulate how new resources are acquired</td>
<td>• Set up regular meetings with collections officers&lt;br&gt;• Create a regular/annual collections plan for assigned disciplines&lt;br&gt;• Communicate curricular proposals and changes and related collections needs to collections officers</td>
</tr>
<tr>
<td>Participate in the governance of collection development</td>
<td>• Create a model of shared governance for collections that includes opportunities for participation and leadership&lt;br&gt;• Facilitate participation and leadership in workshops/forums</td>
<td>• Investigate how similar subject liaisons at other institutions participate and advocate for their subject areas&lt;br&gt;• Work with supervisor/mentor to participate in these service activities</td>
</tr>
</tbody>
</table>
### Manage physical and digital collections

- Create and communicate clear framework and vision for collections
- Offer educational opportunities for managing collections, especially for new and evolving areas (e.g., e-books, born-digital)
- Develop and communicate clear procedures for managing collections—acquisitions, licensing, withdrawals, etc.
- Develop and communicate collections funds framework responsibilities for liaisons
- Articulate expectations regarding development, gifts, stewardship
- Develop clear understanding of current collections in both digital and physical formats
- Investigate and participate in educational workshops or other activities for management of collections in specific disciplines
- Participate in regional and national groups of peers to develop best practices
- Meet with development personnel to develop strategies and practices for facilitating donor relations and stewardship activities

### Create subject-specific collections policies

- Provide framework for creation of policies that clearly articulates format, content, and time line for policies
- Create plan for publicizing/communicating collections policies
- Investigate existing collections policies at other institutions
- Work with other liaisons to discuss/create policies in areas of overlap
- Consult with faculty to ensure that policies are aligned with curricular and research needs

### Develop ongoing assessment program/activates for collections in assigned areas

- Established fiscal calendar for spending
- Institute organizational policies and procedures for collections assessment
- Incorporate expectations into annual reviews and work plans
- Create and conduct training programs for collections assessment
- Regularly survey faculty on research and collections needs
- Meet all new faculty to assess collections needs
- Monitor new programs and proposals for new programs
- Assess collections needs for accreditation reviews
- Participate in library-wide reviews of collections
- Work with supervisor/mentor to develop individual assessment plan
### Teaching, Learning and Literacies

<table>
<thead>
<tr>
<th>Expectation</th>
<th>Organizational Activities</th>
<th>Individual Activities</th>
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</thead>
<tbody>
<tr>
<td>Educate and inform students and faculty about available information resources and research tools and how to use them</td>
<td>• Communicate and share new resources and tools</td>
<td>• Keep abreast of new collections</td>
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<tr>
<td>• Work with peers locally and nationally</td>
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<tr>
<td>Collaborate in the design, implementation, and maintenance of online tools and services that meet the needs of users</td>
<td>• Provide training and assistance in development of online tools</td>
<td>• Actively develop needed skills and keep abreast of new technologies and tools</td>
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<tr>
<td>• Share best practices</td>
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<tr>
<td>Proactively establish partnerships with teaching faculty and researchers</td>
<td>• Incorporate expectations into individual work plans</td>
<td>• Set up individual meetings on a regular basis</td>
</tr>
<tr>
<td>• Establish partnerships and build relationships at organizational level</td>
<td></td>
<td>• Meet all new faculty</td>
</tr>
<tr>
<td>Become more active participants in courses; move away from single sessions</td>
<td>• Provide support for use of online tools for general tutorials</td>
<td>• Develop research and interest profile for each</td>
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<tr>
<td>• Provide resources and time for librarians to become embedded</td>
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<tr>
<td>• Provide training and support for blended learning and flipped classroom approaches</td>
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<tr>
<td>Conduct needs assessment; understand needs of community of users</td>
<td>• Provide centralized support and training for conducting needs assessments/surveys</td>
<td>• Partner with peers and faculty to develop appropriate tools</td>
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<tr>
<td>• Develop best practices</td>
<td></td>
<td>• Analyze national trends</td>
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<tr>
<td>Understand research and scholarly communication patterns of disciplines</td>
<td>• Provide professional development opportunities</td>
<td>• Develop schedule of assessment activities</td>
</tr>
<tr>
<td>• Encourage interaction with disciplinary faculty</td>
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</tr>
<tr>
<td>Teach in subject-specific and general curriculum courses</td>
<td>• Provide framework for teaching expectations</td>
<td>• Discuss issues with faculty</td>
</tr>
<tr>
<td>• Provide resources, spaces, and technology to enable teaching to occur in a variety of formats/spaces</td>
<td>• Work with program coordinators and department heads</td>
<td>• Scan and read scholarship in the field</td>
</tr>
<tr>
<td>• Engage new faculty in opportunities</td>
<td></td>
<td>• Attend departmental symposia and lectures</td>
</tr>
<tr>
<td>• Offer variety of possible ways to teach</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Develop and implement innovative instructional design approaches and formats | • Support professional development of librarians devoted to instruction  
• Offer workshops and forums  
• Provide technologies and tools | • Participate in professional development activities related to teaching  
• Proactively seek out innovative techniques and tools |
|---|---|---|
| Develop skills via conferences, seminars, and professional development activities | • Provide centralized funding and expectations for participation  
• Develop internal program of professional development  
• Hire those with needed skills | • Devote professional development time and energy to teaching  
• Participate in organizational programs  
• Seek out free resources and communities of practice |
| Develop appropriate qualitative and quantitative assessment methods that evaluate impact on student performance and retention | • Provide centralized training and support for assessment activities  
• Offer workshops and forums for skill development  
• Develop techniques and mechanisms for reporting to institution | • Seek out necessary training  
• Develop best practices along with community of peers  
• Participate in organizational activities |
| Acquire and use feedback from students and faculty | • Develop organization-wide tools for obtaining feedback  
• Collect and analyze feedback for the organization as a whole and for individuals | • Develop specific tools and techniques for gathering regular feedback  
• Seek alternative methods targeting different populations  
• Develop communications plan for how feedback is being used |
| Participate in a culture of quality by continuously evaluating and adjusting instructional methods | • Provide centralized tools for evaluation and easy mechanisms, tools, and spaces to adjust instruction  
• Encourage innovation and experimentation and sharing of best practices | • Work with peers and colleagues to develop innovative approaches  
• Experiment with new approaches and evaluate outcomes |
| Proactively explore new opportunities for teaching | • Place a value on teaching; facilitate opportunities  
• Provide necessary resources (time, equipment, space, support) for teaching | • Discuss options and opportunities with individual faculty  
• Share possible ways of integrating library instruction into course content  
• Seek out participation in new courses |
Understand and participate in course management systems

- Partner with centralized IT to ensure library integration
- Build tools and programs to ensure easy integration of librarians and library resources

Keep abreast of learning trends, including in-person, blended, and online

- Provide centralized training, workshops, forums, webinars
- Support professional development of instructional librarians
- Connect with campus leaders in teaching and learning

- Regularly read the higher education and library literature
- Participate in professional programs and activities
- Monitor campus activities regarding teaching and learning

Scholarly Communications/Digital Scholarship and Data Management

<table>
<thead>
<tr>
<th>Expectation</th>
<th>Organizational Activities</th>
<th>Individual Activities</th>
</tr>
</thead>
</table>
| Educate and inform faculty and students about relevant issues | - Develop expertise through scholarly communications program  
- Offer training programs for liaisons  
- Publicize activities and information to campus community  
- Work with campus leaders on relevant issues | - Participate in educational and training activities  
- Discuss best practices for communicating and working with faculty  
- Include information on scholarly communications in orientation and other programs |
| Advocate for sustainable models of scholarly communication | - Provide campus leadership in scholarly communications issues  
- Provide framework and training for individual librarians | - Communicate regularly with college and departments about library-wide efforts as well as national trends  
- Seek ways to advance efforts |
| Work closely with faculty and students to understand their workflows and patterns of scholarly communications | - Provide high-level training and resources for gathering and analyzing information | - Develop regular schedule and tools for systematically gathering and analyzing information |
| Develop tools and services to facilitate scholarly communications | - Provide centralized support for gathering information and for offering services  
- Create centralized Web presence and other tools | - Work with library leaders and national experts to develop discipline-specific tools and services |
| Develop expertise in copyright, data curation, and open-access issues that are relevant to subject areas | • Create or hire copyright/data curation/open access specialist(s)  
• Provide broad training on relevant issues  
• Develop centralized Web presence for tools and info | • Seek out training and skills related to copyright, data curation, and open access  
• Understand relevant issues related to one’s discipline and for various formats |
|---|---|---|
| Develop knowledge or expertise in research data management | • Hire or train librarians in this area  
• Develop training and workshops | • Seek out training and skills related to RDM  
• Understand important RDM issues related to one’s discipline and for various formats |
| Support and promote use of institutional repositories | • Promote repositories at institutional and national level  
• Support use by librarians  
• Provide easy ingest and retrieval  
• Support various formats and functions  
• Support development and maintenance of repository | • Develop expertise in using  
• Deposit one’s own works  
• Integrate into orientations, activities, webpages, and outreach materials |
| Help design and implement online tools and services to meet the needs of discipline/interdisciplinary research communities | • Conduct needs assessment  
• Work with campus research offices and research administration to develop priorities and plan | • Work with disciplinary research centers  
• Conduct needs assessment |
| Document and share practices | • Develop and promote tool kits, forums, and workshops  
• Support professional development activities outside institution | • Incorporate into work plans and review documents  
• Share best practices with disciplinary peers |
| Assess individual programs and participate in broader assessment programs that include both qualitative and quantitative components | • Provide framework for assessment  
• Establish guiding principles and expected practices  
• Provide training in assessment tools | • Develop individual plan of assessment and incorporate items into work plans  
• Obtain skills in qualitative and quantitative assessment techniques  
• Participate in institutional assessment programs |
# Outreach and Engagement

<table>
<thead>
<tr>
<th>Expectation</th>
<th>Organizational Activities</th>
<th>Individual Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educate and inform students and faculty about available information resources and research tools and how to use them</td>
<td>• Communicate and share new resources and tools</td>
<td>• Keep abreast of new collections&lt;br&gt;• Work with peers locally and nationally</td>
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<tr>
<td>Collaborate in the design, implementation, and maintenance of online tools and services that meet the needs of users</td>
<td>• Provide training and assistance in development of online tools&lt;br&gt;• Share best practices</td>
<td>• Actively develop needed skills and keep abreast of new technologies and tools</td>
</tr>
<tr>
<td>Proactively establish partnerships with teaching faculty and researchers</td>
<td>• Incorporate expectations into individual work plans&lt;br&gt;• Establish partnerships and build relationships at organizational level</td>
<td>• Set up individual meetings on a regular basis&lt;br&gt;• Meet all new faculty&lt;br&gt;• Develop research and interest profile for each</td>
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<tr>
<td>Become more active participants in courses; move away from single sessions</td>
<td>• Provide support for use of online tools for general tutorials&lt;br&gt;• Provide resources and time for librarians to become embedded&lt;br&gt;• Provide training and support for blended learning and flipped classroom approaches</td>
<td>• Partner with faculty to develop objectives and assessment tools for information literacy&lt;br&gt;• Seek integration into courses via course management systems</td>
</tr>
<tr>
<td>Conduct needs assessment; understand needs of community of users</td>
<td>• Provide centralized support and training for conducting needs assessments/surveys&lt;br&gt;• Develop best practices</td>
<td>• Partner with peers and faculty to develop appropriate tools&lt;br&gt;• Analyze national trends&lt;br&gt;• Develop schedule of assessment activities</td>
</tr>
<tr>
<td>Understand research and scholarly communication patterns of disciplines</td>
<td>• Provide professional development opportunities&lt;br&gt;• Encourage interaction with disciplinary faculty</td>
<td>• Discuss issues with faculty&lt;br&gt;• Scan and read scholarship in the field&lt;br&gt;• Attend departmental symposia and lectures</td>
</tr>
</tbody>
</table>
| Teach in subject-specific and general curriculum courses | • Provide framework for teaching expectations  
• Provide resources, spaces, and technology to enable teaching to occur in a variety of formats/spaces | • Actively seek out opportunities  
• Work with program coordinators and department heads  
• Engage new faculty in opportunities  
• Offer variety of possible ways to teach |
|---|---|---|
| Develop and implement innovative instructional design approaches and formats | • Support professional development of librarians devoted to instruction  
• Offer workshops and forums  
• Provide technologies and tools | • Participate in professional development activities related to teaching  
• Proactively seek out innovative techniques and tools |
| Develop skills via conferences, seminars, and professional development activities | • Provide centralized funding and expectations for participation  
• Develop internal program of professional development  
• Hire those with needed skills | • Devote professional development time and energy to teaching  
• Participate in organizational programs  
• Seek out free resources and communities of practice |
| Develop appropriate qualitative and quantitative assessment methods that evaluate impact on student performance and retention | • Provide centralized training and support for assessment activities  
• Offer workshops and forums for skill development  
• Develop techniques and mechanisms for reporting to institution | • Seek out necessary training  
• Develop best practices along with community of peers  
• Participate in organizational activities |
| Acquire and use feedback from students and faculty | • Develop organization-wide tools for obtaining feedback  
• Collect and analyze feedback for the organization as a whole and for individuals | • Develop specific tools and techniques for gathering regular feedback  
• Seek alternative methods targeting different populations  
• Develop communications plan for how feedback is being used |
| Participate in a culture of quality by continuously evaluating and adjusting instructional methods | • Provide centralized tools for evaluation and easy mechanisms, tools, and spaces to adjust instruction  
• Encourage innovation and experimentation and sharing of best practices | • Work with peers and colleagues to develop innovative approaches  
• Experiment with new approaches and evaluate outcomes |
Proactively explore new opportunities for teaching

- Place a value on teaching; facilitate opportunities
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Program Implementation and Policy Creation

Implementation for us translated into changes in the way we defined ourselves, viewed our work priorities and core responsibilities, and collaborated. To facilitate this change, the Public Services Division was reorganized to have all subject librarians in the same department, now called Research and Learning. All our subject librarians are still divided into smaller administrative units based on function, location or branch. The Research and Learning is led by the Director of Research and Learning assisted by a management group, R&L Heads, comprised of all managers in the department who are either heads of branches or functions. Since all subject librarians are in a single department it provides for better administrative oversight and facilitates unity, cooperation, coordination, and commonalities across locations and purposes. The Research and Learning department also went through unifying exercises to define our common mission, vision and goals, as well as strategic priorities, which are periodically under review.

All of LSTF recommendations were important. However, we chose to start with the development of the framework for annual reports for librarians, believing that going through such exercise on an annual basis will help all of our public services librarians in easing into their new roles as liaisons. We aimed to achieve full participation in the
process of implementing the new system by creating multiple opportunities for people to speak, make suggestions and voice opinions in private and in public forums. The new guidelines went through multiple approval levels so everyone had a chance to speak up and make adjustments.

Since the Libraries had a very strong prior culture of annual, merit and tenure reviews, and to avoid confusion, we layered the new annual assessment processes over already existing ones, but focusing it on the framework developed by LSTF Report. We also created written documents to be used by librarians and supervisors alike, composed of guidelines, examples and templates. These documents are easily accessible to our staff since they are placed on the internal Libraries website and are updated as needed.

The annual report for liaison librarians is divided into three main categories: Librarianship, Service and Scholarship/Creativity. This strictly follows our library faculty guidelines for promotion and permanent status review, which makes it easier for people to build their dossiers for the promotion when the time comes. In fact, our non-permanent status librarians were the leading catalyst for developing this process. They wanted clearly stated annual review procedures that can help them grow both professionally and within the organization. They are still some of the biggest proponents of the current review.

In the first year (2014), we asked liaisons to demonstrate activities in at least three out of five categories of liaison activities identified by the report, to ease folks into the process. In the next annual cycle (2015), we changed that to full compliance, as we moved further in the implementation stages. After living with the new system for the first year we also came to realization that we did not have a common understanding of what are our expectations should be, i.e. what set of skills was appropriate for our work across all disciplines and locations. For example, what are subject librarians’ responsibilities towards bibliographic management software: does each one of us offer services related to this and at what level? On this issue alone we had opinions ranging all along the spectrum. Thus in order to have a meaningful assessment we had to arrive at a common understanding of our CORE competences, both subject and skills based, which incidentally was another of the LSTF Report’s recommendations.

In late 2014, we developed CORE Competences for Subject Specialist Liaison Librarians, Research Services, Public Services Division, University of Maryland Libraries, both subject and skill-based, which we are using now as the baseline for all subject librarians, regardless of discipline or location (see http://hdl.handle.net/1903/17457). As with all other big decisions, this was truly a communal effort, which went through an array of public and private discussions and various levels of approval. These CORE competences became effective on January 1, 2015. They are designed to be a self-motivating developmental tool for liaison librarians, guide their individual work, and provide a training framework based on individual needs, especially for new hires. As our annual review cycle is calendar-based, we implemented the newly defined CORE competences just in time for the 2015 annual review cycle.
From the start, we viewed liaison annual assessment as a developmental tool for individuals, where the conversation between librarian and supervisor is an integral part of good performance. The purpose and goals of assessment are aimed at fostering the individual’s professional growth, not punitive outcomes. The assessment is a measurable indicator of an individual’s engagement with his or hers work particularly in relationship to faculty and departments we serve. It is a series of benchmarking on the part of an individual that show support for institutional goals. These goals are intimately connected to the unit, departmental and the Libraries strategic goals, and the promotion and tenure review policies and procedures as shown above. Annual report documents used at the University of Maryland are available here: http://drum.lib.umd.edu/handle/1903/18056.

We want our assessment to be meaningful, manageable, sustainable, actionable and motivational. The focus of evaluation is to encourage liaisons to demonstrate the impact of their activities and why they were important. For example, it is wonderful if someone taught fifty subject classes a year, but what was the impact of such effort? What did students learn? Did the librarian do anything different from one session to another? Was this effort worth the work that went into it? Prior to this, we just did not consider those issues. Our librarians can demonstrate the impact of their activities in a variety of different ways, including assessments, statistical data, speaking or publication opportunities, and kudos or comments from faculty, students and/or colleagues. None of these measures are draconian in our view, and folks have quite a bit of freedom in deciding on what, when and how to use as evidence to substantiate their points.

Since individual growth is an important part of our assessment, it is important to acknowledge failure as a part of growth. Success does not come right the way, it comes through trial and error and personal reflection on those efforts. To develop new ideas takes a lot of time, energy, and courage. Thus it is important to allow people room to experiment and to give them credit for their efforts, successful or not, as long as they are within institutional goals. Another important part of the assessment is for supervisors to help individuals identify areas where improvements might be needed and to help identify possible training to remedy deficiency. And of course we want to highlight and celebrate individuals’ achievements and hard work, both privately and publically. To that end, we have regular kudos column as well as a regular newsletter that highlights achievements on our subject librarian’s website, http://www.lib.umd.edu/rc/meet-your-librarian.

An important component of implementation is to actively address and manage conflict, resistance, fear, uncertainty, and other barriers. We chose to enter this process in a very open, collaborative manner, and one in which we continually emphasized that there would be support for professional development as liaisons took on new, emerging roles. Our goal was to eliminate fear and uncertainty as much as possible as these can...
have a paralyzing effect and can lead to inactivity or resistance. This is an ongoing process as individuals adopt and progress at different paces depending on their backgrounds, skills, clientele and self-confidence. We feel we have been largely successful because we have provided clear expectations and rubrics, but at the same time allowing for individual focus on those areas that are most appropriate to a specific liaison. As such, the library administration has sought to create a learning environment with an abundance of professional development activities and support as well as to create venues for the sharing of successes, best practices, and failures.

Communicating Value

In time of rapid and fundamental changes in academic and library landscapes, libraries are increasingly engaged in assessment activities to monitor and measure their impact. A successful liaison program is critical to meeting library and institutional goals, to demonstrate how librarians are contributing to the broader institutional mission, and how libraries are providing value in their support of research, teaching and learning. Many institutions of higher learning re-deploy their librarians to meet their strategic goals. However, how do we know what is successful and what is not, and where do we need to put our energy and resources? Proper assessment tools will help build and develop a meaningful liaison program, specific to any given institution.

Communicating value is a multilevel marketing effort that needs to occur at the individual and organizational levels. Individual liaisons must be able to articulate their services and to proactively contact and work with constituents. Because success leads to more success and an appreciation of the added value of these services, initiating and demonstrating success to key early adopters is crucial. One aspect that worked well was a faculty interest survey in which faculty were queried about possible services from the library. At the organizational/library level, efforts can be made to promote and market these services. At the University of Maryland this is done via our communications department, with direct mailings and promotions to our users, and also through the establishment of our “Research Commons” – a physical and virtual resource that was developed to directly promote liaison services to our research community (see https://www.lib.umd.edu/rc). A key component to this initiative is active partnership with key units, including the campus office of research, division of information technology, and the graduate school. Offering joint services in a centralized manner assists in communicating new and emerging services while aligning ourselves with other units that are perhaps more established in the minds of faculty and researchers with less traditional types of assistance.
With a greater emphasis on assessment and demonstrating impact and outcomes in higher education, the assessment of liaison work provides a great deal of insight to library administrators, which they can use in allocating resources and presenting a positive vision of the library to campus administration. The assessment is also a very powerful tool for liaison librarians themselves, in seeing the impact of the work they are doing, how they connect to their campus environment, and where they need improvement and growth. As the nature of liaison work continues to evolve, it is imperative that liaison librarians adapt their work and develop appropriate assessment tools to demonstrate the positive impact of their activities.

References


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Paragraph (use style: Paper – Paragraph). This template provides authors with most of the formatting specifications needed for preparing electronic versions of their papers. All standard paper components have been specified for three reasons: (1) ease of use when formatting individual papers, (2) automatic compliance to electronic requirements that facilitate the concurrent or later production of electronic products, and (3) conformity of style throughout conference proceedings. Margins, column widths, line spacing, and type styles are built-in; examples of the type styles are provided throughout this document and are identified in italic type, within parentheses, following the example. Some components, such as multi-levelled equations, graphics, and tables are not prescribed, although the various table text styles are provided.

Figure (use style: Paper - Figure)
Introduction
Public library standards have been in use in Wales since 2002, to monitor library performance and aid the relevant Government Minister in fulfilling the statutory duty to provide a “comprehensive and efficient” public library service. The fifth framework of standards – Libraries making a difference (Welsh Government, 2014) – was in force for the three year period from 2014 to 2017, and its development was described in Creaser et al (2015). All public library authorities in Wales have now reported results under this framework, although at the time of writing some returns are incomplete, and the final year’s figures remain provisional, pending publication. As a consequence, data presented in this paper are derived from the completed reports for the first two years of the framework.

This paper gives a broad overview of the framework, describes the implementation of the standards and the impact this has had on public library services in a time of considerable change. It will conclude by looking towards the future for public library quality monitoring in Wales.

Libraries making a difference
The fifth quality framework for public libraries in Wales represented a major departure from previous public library standards in the country by introducing a formal element of impact and outcome assessment alongside the more usual performance measures of inputs, outputs and satisfaction scores. It comprises 18 core entitlements and 16 quality indicators representing four broad areas of activity – customers and communities, access for all, learning for life, and leadership and development. All public library authorities in Wales make an annual return to MALD, the Museums Archives and Libraries Division of the Welsh Government, reporting their results against the core entitlements and quality indicators, together with a series of narrative reports describing their contribution to government agenda, case studies of impact, and future direction. These returns are independently monitored and assessed, and a report prepared for each authority. An analysis and summary of results across Wales are presented annually to the Welsh local authorities; at the conclusion of each framework period a summary report is made available via the MALD website. Without a change to legislation, the standards framework is not statutory guidance for the delivery of a comprehensive and efficient public library service, as set out in the 1964 Public Libraries and Museums Act; however all public library authorities in Wales see the value of the framework and all have made returns in each year. Following approval by the relevant minister, individual authority reports are also published via the Welsh Government website1.

Core entitlements
The eighteen core entitlements are listed in Table 1. These were not new, having been introduced in Libraries Inspire (Welsh Government, 2011), the government’s library strategy for 2012 to 2016. What was new was that library authorities were required to self-assess their performance against each of these and report whether they fully met, partially met, or failed to meet each entitlement, providing details where relevant.

Customers & communities
1. Ensure friendly, knowledgeable and qualified staff are on hand to help.
2. Stage a range of activities to support learning, enjoyment and enable users to obtain the maximum benefit from the available resources.
3. Provide access to a range of services and resources to support lifelong learning, personal well-being and development, and community participation.

Access for all
4. Be open to all members of their communities.
5. Be free to join.
6. Provide a safe, attractive and accessible physical space with suitable opening hours.
7. Provide information resources for individuals and groups with special needs.

Learning for life
8. Lend books for free.
9. Deliver free access to information.
10. Provide free use of the Internet and computers, including Wi-Fi.
11. Deliver free use of online information resources 24 hours a day.
12. Provide access to high quality resources in a range of formats, including those in the Welsh language, reflecting changing forms of publication.
13. Share their catalogues, to enable a single search of all Welsh library resources.

Leadership and development
14. Promote libraries to attract more people to benefit from their services.
15. Regularly consult users to gather their views on the service and information about their changing needs.
16. Work in partnership to open up access to the resources of all Welsh libraries.
17. Provide access to the library service’s strategy, policies, objectives and vision, in print and online, in a range of languages appropriate for the community.
18. Provide a clear, timely and transparent complaints process if things go wrong.

Table 1: Fifth quality framework – core entitlements

<table>
<thead>
<tr>
<th>Quality indicators</th>
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<tr>
<td>The quality indicators are summarised in Table 2, and are of three broad types.</td>
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<tr>
<td>• Input indicators, concerned primarily with what the library service will provide - staffing, resources, expenditure;</td>
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<tr>
<td>• Output indicators, concerned with levels of use – circulation, attendance at events; and</td>
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<tr>
<td>• Outcome and impact indicators, measuring the direct or indirect effects of the library service on its users, and on the wider community – satisfaction, making a difference.</td>
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Seven of the quality indicators (numbers 3, 5, 8, 9, 10, 13 and 16 in table 2) have one or more targets associated with them; so that libraries can achieve the indicator in full, in part, or not at all. The remainder are described as benchmarking indicators, with performance being monitored over time and in comparison to other services.
Customers and communities

1. Making a difference
2. Customer satisfaction
3. Support for individual development
4. User training

Access for all

5. Location of service points
6. Library use
7. User attendances at library events per 1,000 population

Learning for life

8. Up-to-date reading material
9. Appropriate reading material
10. Online access
11. Use of ICT - % of available time used by the public
12. Supply of requests

Leadership and development

13. Staffing levels and qualifications
14. Operational expenditure
15. Cost per visit
16. Opening hours

Table 2: Fifth quality framework – summary of quality indicators

Narrative reporting

The purpose of the narrative reporting is twofold. The first is to build an evidence base of case studies of the impact which use of the library service has on individuals, groups or the wider community. The second is to demonstrate at a more general level how the library service contributes towards both national and local policies, strategies and agendas, and so encourage libraries to make explicit their relevance and value to policymakers at local, regional and national level. A statement concerning future plans is included to provide early notice to MALD of proposed changes in service provision.

Findings

Wales comprises 22 independent library authorities, which vary in size from five to 20 service points, serving densely populated urban conurbations to remote and sparsely populated rural areas. Given this demographic diversity, it is only to be expected that there will be variation in the services provided, and that performance against the standards framework will be mixed.

Core entitlements

Authorities have interpreted compliance with the core entitlements in different ways. Some have been relatively strict, marking themselves down if targets in related areas have not been met; others have been more lenient in similar situations. One of the tasks of the assessment process has been to moderate such differences.

In the first two years of this framework, seven of the 18 core entitlements have been fully met by all authorities. Library services in Wales are all free to join; all provide a range of services and resources in support of lifelong learning, personal well-being and development; resources for users with special needs; free online information; a range of formats; share their catalogues; and all have a clear complaints process. Compliance with six entitlements has improved over the year, with more authorities now meeting entitlements related to the physical space, free use of the internet and Wi-Fi, user consultation, partnership working and access to policy and strategy documents. The most challenging entitlement has been the first, related to staffing, where budgetary restraint during recent years has led to staff cuts such that some authorities feel they no longer fully meet the entitlement to “ensure friendly, knowledgeable and qualified staff are on hand to help”.

Quality indicators with targets

In the area of customers and communities, library authorities are required to provide five types of customer support in all static service points open for 10 hours per week or more. These are support in using ICT, skills training, information literacy, support to access e-government resources, and reader development programmes. Figure 1 illustrates the percentage of the 22 library services complying with each element in the first two years of the framework, which has improved over the period.
In the area of access for all, all authorities have met the targets for location of service points, specified in terms of the percentage of the population living within a fixed distance of a service point or mobile library stop, varying according to population density, throughout the period.

In the area of learning for life, targets relating to materials provision in terms of overall acquisitions and the balance of material in the Welsh language and for children have proved challenging. Figure 2 shows the percentages of authorities complying with each aspect of these indicators. It remains to be seen whether the improvements made in 2015-16 in levels of acquisitions will be sustained into 2016-17. Note that targets relating to materials for children are set in terms of the proportion of spending in relation to the proportion of children in resident population, and authorities can miss this target by spending too great a proportion of their materials budget on children’s materials as well as by spending too little.

Targets for provision of online services have fared better, with improvements in internet availability, provision of computers, which includes laptops and mobile devices, and customer Wi-Fi (Figure 3). An issue here for several authorities is the rural nature of their geography, having small service points serving small communities with limited infrastructure to provide broadband and Wi-Fi access. A further issue, particularly in rural areas, is provision of internet access on mobile libraries for customers, and authorities are not failed on this indicator provided all static service points provide access.
Two indicators in the area of leadership and development have targets, and these have also proved challenging. Targets are set for both the total number of staff and the number of professionally qualified staff per 10,000 population. Staffing is the largest element of library services budgets, having been maintained at a median of 58% of the total during the framework period. With cuts to the median budget of 9% between 2014-15 and 2015-16, it is inevitable that staff numbers will fall, as shown in Figure 4. Library services are professionally led, and three-quarters have met the targets for staff training and professional development which were new for this framework.

The final target relates to opening hours, and again, some authorities have found this challenging. Aggregate annual opening hours are set at 120 per 1,000 population per year, and whilst 91% achieved this in the first year of the framework, the figure fell to 68% in the second year.

Quality indicators with benchmarks

The remaining indicators are assessed against past performance and other authorities. The median is used for comparison, as this does not give undue weight to results from the largest authorities. Of particular interest are the indicators of use (visits, virtual visits, members, active borrowers, and issues) which, with the exception of book issues, have remained relatively steady in the first two years of the framework. Book issues have fallen between 2014-15 and 2015-16, from a median of 3.7 per capita to 3.1 in 2015-16. Physical visits also fell, but the fall was less marked, from a median of 4.2 per capita in 2014-15 to 4.0 in 2015-16. This confirms that people visit the library for more than the books; both event attendance and the numbers of people attending user training sessions have increased.

Authorities also report on the speed of supply of requests. Requests for material not in stock are, with one or two minor exceptions, supplied at no charge in Wales, under the core entitlement to lend books for free. No targets were set in the fifth framework, but authorities reported on the percentage of requests met within seven and 15 days (Figure 5). There has been a slight improvement in both figures.
A further area where no targets are set is total library expenditure. As already noted, median expenditure per 1,000 population has fallen, from £14,054 in 2014-15 to £12,749 in 2015-16. These cuts have fallen evenly across the service, with little change in the median percentages spent on staff and materials. A key measure of efficiency is the cost per visit, and as a result of falling expenditure and stable visitor numbers, in 2015-16 net cost per visit ranged from £1.83 to £3.53, with no evidence of association between visitor numbers and cost (Figure 6).

One reaction to budget cuts has been for library authorities to close libraries, or, more often, hand them over to the community to run, with varying levels of support provided on an ongoing basis. In 2014-15, authorities reported a total of 241 service points, with 24 supported community libraries and 2 independent community libraries. In 2015-16, there were 31 supported community libraries and 3 independent community libraries. This trend is expected to continue, with falls anticipated in the number of fully local authority run libraries. Libraries are also increasingly using volunteers within their service, including offering work experience placements, volunteering into work schemes, and in support of particular projects and activities. MALD monitors this activity, requiring details of the numbers of volunteers, the numbers of hours they contribute, and how they are managed and supported. The median number of volunteers has increased from 14 to 18 in the first two years of the framework, and the median number of hours contributed has risen from 572 to 582. Again, this trend is expected to continue.

Impacts and outcomes

Quality indicators dealing with impacts and outcomes include two based on customer surveys of satisfaction and impact, which should be carried out at least once during the three year period of the framework, and one on the impact of user training. Just 14 authorities carried out customer surveys in the first two years of the framework, so the results for these indicators may change when the figures from six who reported on surveys carried out in the final year are included.
Customer satisfaction is generally high, with median percentages of adults rating library services as ‘good’ or ‘very good’ at 97% for the standard of customer care; 89% for the choice of books, and 97% for the library overall. Children aged 7 to 16 years are asked to give the library a score out of ten, and the median achieved was 9.2.

Customer satisfaction is not a direct indicator of impact, and questions, derived from the methods described in ISO 16439 (International Standards Organisation, 2014) are included for adults on whether they think the library has helped them develop new skills, whether they have found helpful information for health and well-being, and whether they think the library has made a difference to their lives. Children aged 7 to 16 years are asked if they think the library helps them learn and find things out, and if they think the library has made a difference to their lives. The range and median percentages of those that agree are shown in Figure 7 (medians are marked X). The range of responses across authorities is wide, particularly from adults, and this warrants further investigation.

Figure 7: Percentages of respondents who think the library has had an impact

The narrative elements of the return also deal with impact. Each year, authorities report their activity and services mapped to local and national government strategies and priorities, showing where and how they contribute to wider priorities. The statements provided are detailed, describing the range of services and activities offered by library services, and mapping these onto agendas such as health and well-being (e.g. tackling health inequality; programmes for dementia sufferers and their carers); anti-poverty (e.g. CV writing and work clubs); education and skills (e.g. homework clubs); digital skills (with a wide variety of training and support); literacy (from Bookstart and Rhyme time for children to reading groups for visually impaired readers and older people); safer communities (e.g. providing a safe neutral space for delivery of domestic abuse support); cultural heritage (through a range of activities and events focussed on local and national history, and promotion of the Welsh language) and social exclusion (e.g. the housebound delivery service, and ‘knit and natter’ groups bringing people together).

These statements are supported by up to four case studies of individual impacts which are building into a powerful evidence base. The best case studies include descriptions of the engagement of users with the service alongside the effect this has had on the user(s), including quotes from the individuals involved. Common themes are beginning to emerge, around health and well-being, digital inclusion, reducing social isolation, increasing employability, and educational attainment (Figure 8).
Challenges

Measuring the impact of libraries is challenging in itself. Although library authorities had asked for this framework to include more measures of outcome and impact, many found them challenging to provide. It may be that a one or two authorities will have struggled to conduct a survey of users in the final year of the framework, and one or two have not been able to include all the impact questions when using standard survey instruments. Others found providing case studies to be time consuming. Resources were being reduced, and for some this was seen as a distraction in the first years. It is noticeable that the quality of the narrative reporting in general, and the case study element in particular, has improved from year to year.

A major challenge for this framework was the requirement to report on usage of the Wi-Fi network. In 2014, libraries were making significant investments in Wi-Fi provision, and it was thought important to measure usage to justify the levels of spending. Anecdotal evidence suggested that customers were increasingly bringing their own devices into libraries to use the Wi-Fi network where available, and this was having an impact on usage of authority-provided PCs. Definitions were set in broad terms, as the number of hours during which the network was being used by anyone divided by the number for which it was available. Wi-Fi services are provided in several different ways, including in collaboration with other local authority services, and not all service providers were able to provide the necessary data. What was available was not consistently defined, and did not always cover the whole authority area. Despite the agreed importance of this measure, it has been removed from the next framework pending the availability of more reliable and consistent data.

Other challenges have not been under the library’s control. Financial restraint has led to restructuring in many authorities, with some transferring libraries into trust organisations which often embrace wider leisure and cultural services formerly provided directly by the local authority. At a time when services are having to adopt new ways of working to adapt to budget cuts, organisational instability brings added pressures. The activity and resources of libraries which are now community managed are not, generally, included in authorities returns, and the support provided for such libraries becomes an overhead with little apparent benefit to the service.
Into the future

The fifth quality framework of Welsh public library standards covered the period 2014 to 2017. While there have been challenges, the framework has been successful in providing evidence not only of the levels of activity in libraries, but the effects that libraries can have on people’s lives, and their contribution to the wider economy. The sixth framework (Welsh Government, 2017) has been developed from the fifth, in consultation with the authorities, and drawing on the experiences of impact reporting for the first time under the fifth framework. While looking rather different, the reporting requirements are largely unchanged, with measures aligned to current Welsh Government policies and agendas. A key development has been the incorporation of guidelines for community supported libraries, detailing the levels of support which must be provided by the local authority library service for such libraries to be included in the returns.

As one user said “While richer students could afford to study where they liked, I hiked the couple of miles to the [public] Library every day to use the facilities. … Not only did it exercise my body, it expanded my mind. … My life has changed forever because of a library. Your library.”

References


Space. Making the University Library the best place.

Marit Bull Enger

UiT The Arctic University of Norway

Introduction

How do the students use the Library? How can we make the space more attractive for them? Can we make the library in to a Social arena on Campus? In March 2017 a larger renovation at the first floor at the Culture and Social Science Library at UiT the Arctic University of Norway (UiT) started. During the planning process, these where some of the questions that came up.

In the process, different departments and students were involved, to insure user input. However, for this project there was no time for running and analysing a survey, or systematically collect data otherwise to support or disprove response form user groups. At the library we decided to prepare for the next renovation. The library has to more floors that are in desperate need of a properly facelift. What is the best way to go to be more ready in the event of future makeovers of the library building? A study like this could be useful in day-to-day management and development of the library space. It will also be beneficial for the other libraries at UiT.

Approach and findings

There are many ways to collect data. How do we gather best the data to enable us to create the best space possible for our users? We want to go wide out and gather information using different methods.

In December and January, the University Library at UiT ran a survey. Asking the users, university staff, scientists and students about their behaviour, experience and satisfaction of the University Library. The response to the survey was really disappointing and the validity of the answers is lower than expected, however we decided to analyse the results as planned. The analysis of the data is still in progress but so far, the study of the survey shows us, not surprisingly, that in general the users are quite satisfied with the University Library. It is in free text replies the most useful and interesting answers are. Most comments were about the staff, the air quality, group rooms, noise and the library search engine. In this project the attention is on the feedback related to use of the library space.

In short, users mainly complains about too much noise, some wants quiet zones, some wants quiet reading rooms in the library, or they want more suitable tables for group discussions. Everyone asks for more group rooms Is seems that many of the users have divergent interests concerning the library space.

The criticism regarding lack of group rooms and too much noise in the Libraries, and the library space in general, shows the necessity for better tools to map measure user behaviour. The data from the survey indicates quite different needs and wishes from the users.

At the Library of Culture and Social science, we are about to start Tracking the traffic (TTT). This method systematically collects quantitative data about student behaviour in the library. The library staff will, several times a day, during a period, track what the students do at the library (Høivik 2014). It is not how many who is at the library that is counted, but the activities at the time.

The last three years we have during a period of 5 weeks we have counted all the users in the library at one specific time of the day. Not as systematically as the TTT-method and the data is more or less quantititative, however with this numbers we have some statistics of the use of the ground floor from before the facelift to compare with.
There was never time to do any interviewing before the renovation started, but as mentioned, at the same time as we do the traffic tracking, we will make some short random interviews to find what they like about the library, what they don’t like and what they miss. Comparing to answers from the survey run last winter, some things has improved after the ground floor renovation.

Summary and the way ahead
Will the analysis of the survey, the TTT and the interviews provide the information we want? We hope that tracking the students and talking with them and other users will give us a clearer picture of how they experience the library. This will in turn enable us to create a better workspace and environment for the students at UiT.

The renovated ground floor will be reopened in September 2017, the plan was originally was to get a smaller information desk and for the library staff to be more out in the field, around the library. But now the library will share space with other departments at UiT, The Faculty of Humanity Social science and Education, the student administration and the IT-service, especially during semester start and the time of exams. This means that at some times there might be three persons behind the desk heling with three or four different problems. Therefor the information desk becomes bigger than first planned. The collaboration will definitely be a new experience for the staff.

Some might ask us to consider the consequences of sharing space to other departments, but studies shows that it often is beneficial with this type of collaboration. (Appleton 2013). It is not so common in Norway yet, but we see successful examples where for instance IT-department and Library is one unit.

We don’t know how this will work out in Tromsø, and if it will have any influence on the use of space. For the University Library at UiT this kind of space sharing is new, hopefully the service level will increase and it will be quite interesting to see if the change in the information desk service affects the use of the Library. The library staff will watch the use of the space closely, and if the usage of the new area is not as expected we have to do adjustments.

So what does they get in the new area? More space, some of the room was earlier for exhibitions, a few more group rooms. More open space for group work, better PC facilities and new furnishing!

References


Never make the mistake of assuming that the results will “speak for themselves”. (Davenport, 2013)

Libraries have long collected data and reported it out to various interested bodies – users, colleagues, administrators, and themselves. Over the past decade, what data we collect, who we share our data with and how we present that data has become the focus of much attention and interest in an increasingly data-driven world. While I disagree with Brendan Howley’s recent assertion that libraries are “well behind the curve in telling their own stories” (Howley, 2016, p. 13), my argument is semantic. We are among a large, equally remedial, group of non-profit and educational work environments all starting to come to terms with the new business-influenced mechanisms for budgeting and reporting out. Though we readily acknowledge that the data won’t speak for itself, we also admit that our understanding of data visualization is in its infancy. Bubbling into our consciousness through data journalism and a growing amount of literature in library publications (as well as one widely viewed and cited Ted Talk by Hans Rosling (2006)) data visualization delivers a lot of ‘Wow!’ when first encountered. Even a library professional with standard technological skills would find it fairly easy to jump in and start creating data visualizations with low-barrier software like Tableau Public. As described by early adopter Sarah Anne Murphy in her influential article, ‘How Data Visualization Supports Academic Library Assessment,’ Tableau shifts ownership of analytic work from an expert in IT or data analysis to the average user…The software offers librarians a flexible platform to create several styles of graphs or views, and then assemble these views into a story that articulates a library’s contributions to the communities they serve. (2015, p. 482)

In other words, the software makes it easier for us to get into the data visualization pool, and perhaps do a bit of paddling around, but does not inherently allow us to start winning and races, or even complete a few laps in good form.

By taking advantage of our human ability to process information visually, the “half-art, half science of data visualization” (Phetteplace, 2012, p. 93) employs a variety of “editorial layers...to convey meaning, including the data, visual representation, textual annotations, and interactivity” (Hullman and Diakopoulos, 2011, p. 2231). Two specific examples of data visualization are on the rise in the realm of library assessment: infographics and dashboards. Each providing a different ‘picturesque’ avenue into library datasets, these tools promise engagement and elucidation on a level that data tables have been proven unable to meet (Wakeling et al., 2015).

A growing body of work from within library channels (Chen, 2017; Magnuson, 2016) and without (Wakeling et al., 2015) is taking the data visualization conversation beyond its enthusiastic naissance and into more profound territory. As a profession, we are just beginning to uncover data visualization’s underlying mechanisms as well as the various forms it can take, the appropriate uses of those forms, and the ability of the creator to guide an audience to a specific conclusion or aid in open exploration. Part of the emerging discussion must also be a desire for a better understanding of the skillsets required on the part of both creators and audiences to use data visualization to its full effect in library settings.

Infographics – What’s the Story?

Data visualization is often presented as an improved means of broadcasting library stories. This characterization remains popular in the literature today, and is central to the logic of investing time and effort in following this path and integrating it...
into library culture (Hofschire, 2016; McDermott, 2014; Perez and Kaufmann, 2016). For this purpose, infographics and other visualizations that rely heavily on storytelling techniques have much to offer. Data journalism is showing us the way in this area and can be looked to for inspiration and example – the Information Is Beautiful website by David McCandless (2017) is a good place to start exploring.

Valuable research already exists and is available for our use which unpacks the techniques used in by data journalists (Hullman and Diakopoulos, 2011; Kosara and Mackinlay, 2013; Segel and Heer, 2010), and is particularly helpful in making their ‘secrets’ available for use in library infographics and data stories. At the core of this approach to data visualization are basic storytelling techniques and goals, rooted in oral traditions of past millennia and augmented by traditional elements from print journalism and modern technologies currently at our disposal:

Tying facts together into a story is one of the most effective ways of presenting them and making a point… We define a story as an ordered sequence of steps, with a clearly defined path through it. Each step can contain text, images, visualizations, video, or any combination thereof. (Kosara and Mackinlay, 2013, p. 44)

According to Kosara and Mackinlay, data analysts with Tableau Software whose 2013 paper, ‘Storytelling: The Next Step for Visualization’ advocates strongly for including storytelling in future data visualization research, memorability is the central concept for stories. Hilary Davis agrees that, for infographics, “the message should be significant or surprising” (Davis, 2009). Similarly aligning his advice with narrative technique, business columnist Hugh Watson presses us to make sure that our data stories follow the same arc set out since storytelling began: Establish the setting, define the characters, define the problem or conflict, show the resolution and future (2017).

Dashboards – Who’s in the Driver’s Seat?

As tempting as it is to take charge of our data and our stories by using data visualization to form a clear and memorable message for audiences, we must also recognize visualization as a powerful tool for open-ended exploration by libraries and their stakeholders. In this mode, infographics – which demand a strong point of view on the part of their creators – may not be the best tool at hand. Instead, dashboards can allow for data to transition through information to knowledge by pulling data from its almost impenetrable tabular mode to allow intersections, trends and patterns to be made visible through visualizations (Archambault, 2016). Internal and external stakeholders can and should be encouraged to use these dashboards to “hone meaningful information that can be used to answer a pressing question about library services, to demonstrate value, or to simply serve as a launch pad for exploration” (Phetteplace, 2016, p. 1).

At their best, dashboards “[enable] closer scrutiny of trends in library use, ideally resulting in a more agile response to problems and opportunities. It allows decisions and trade-offs to be based on concrete data rather than impressions.” (Morton-Owens and Hanson, 2012, p. 36) They have the potential to give library employees – that is, the ones with access to these tools and the literacy necessary to ‘read’ the visualizations - the ability to use them to improve and align their library to its users. In an ideal form, data visualization can allow audiences to gain new insights, even those not imagined by the visualization’s creator.

As devices to connect with stakeholders in more meaningful ways (Chen, 2017), decision-making aides (Chen, 2017; Kosara and Mackinlay, 2013; Murphy, 2015) or tools for uncovering new truths about our users, their needs and how we can better serve them (Morton-Owens and Hanson, 2012), dashboards are only as helpful in so far as they can be directly connected to the work they are intended to support. The underlying data for any data visualization project, but especially a dashboard, must be accurate, reliable and aligned to your library’s purpose. “Bounteous design cannot overcome data drought”. (Phetteplace, 2012, p. 95) This is made much easier if your library has a strategic plan - or a strategic plan and an assessment plan - with clearly defined goals and measures. As stressed by Morton-Owens and Hanson in Library Information Technology, “A dashboard should present data dimensions that are dynamic… Better yet, the data should be presented alongside a benchmark or goal” (2012, p. 38).

As with the library-wide strategic planning process, dashboards must be created with the participation of the audiences they are intended to serve. “The best advice for creating great visualizations is often to create as many draft visualizations as
possible and to seek out feedback on your ideas”. (Zoss, 2016, p. 42) Identifying your audience is key for any data visualization project, whether they are library patrons, administrators, the community where your library lives or library coworkers. If your visualizations are not created with real input from those who are tasked with the role of hearing the story and/or exploring the data, they become futile efforts which will never fulfill the potential of the medium.

The Faces behind the Data

One of the key purposes of data visualization is to accurately represent our patrons and learn from their experiences (Howley, 2016; Phetteplace, 2012). We must always remember that the protagonist of these stories is not ‘The Library’; it is the people the library serves. In any visualization project, we should be telling user stories in which the library is a key character but not the core of the tale. Swapping the narrative in this way will tax our creative minds but needs to be thought of as the heart of our work in assessment and communications.

To effect this, new roads to insight must be explored. Up until now, the concept of ‘data’ in data visualization has primarily meant quantitative figures. However, new work in Canada by the Federation of Ontario Public Libraries and their Open Media Desk (OMD) project strives to cross dashboard boundaries to represent and make available qualitative user experience data for exploration and use by any interested parties. “Personal stories, the mapping sessions showed, are the ideal means to not only promote libraries but to encourage hidden insights to bubble up, all to help promote library resources, programming, and offerings.” (Howley, 2016, p. 13) Whether delving into qualitative data, quantitative data or a mix of both, is important never to lose sight of the fact that the data represents real people and their real habits, not an abstract set of numbers to be manipulated to support our own preconceived ideas about libraries and librarianship.

Striking the Balance

There is a central tension in and across much of the current library literature on data visualization, one that is not always articulated. Where is the line between the creator of a data visualization predetermining a narrative (such as in infographics and data stories) or allowing the audience autonomy of exploration (through means live dashboards and other interactive visualizations)? Can goals of persuasion and facilitation of autonomous decision-making co-exist within one visualization, or must we first consider our target audience and specific goals, and then allow these to guide us to one approach or the other?

Sharing common ground with other constructed representations of reality (movies, television, comic books, video games) and comprised of a number of overlapping and complementary narrative devices (Segel and Heer, 2010), data visualizations are not ‘pure’ communication. Whether a simple chart, a complex dashboard or a multi-frame infographic, data visualizations are mediated events. Conscious editorial choices based on recognized drivers and articulated goals must be made on the part of the data visualizer/interpreter in order to bring them into being and bring off their intended effect.

A narrative visualization represents a sequence of choices to either add information (such as by adding suggestions of an intended message using textual annotations) or omit information (such as by omitting some variables or interactivity features). (Hullman and Diakopoulos, 2011, p. 2233)

It is best that we approach our work with an understanding of this. We should make our best efforts to ensure that our intentions are clear to ourselves in the creation process, as well as to our audience during presentation. If we are aiming to persuade, we should not hide behind false claims of providing decision-making autonomy. An overarching goal for data visualizations is to spur action of some kind. For a visualization to be effective, its creator must have an idea of what that action is and build the visualization accordingly (Chen, 2017; Dando and Thornton, 2014; Keiser, 2016; Watson, 2017), including planned and deliberate attention paid to enabling user exploration. As advocated by Eric Phetteplace in his excellent article, ‘Effectively Visualizing Library Data, “…[data visualizations] do not merely report a single, unassailable truth, but give the end-user an opportunity to explore the data and reach possibly unanticipated conclusions” (Phetteplace, 2012, p. 94). This sentiment is echoed by Barbie E Keiser in a recent issue of Online Searcher: “Dashboards are usually designed to inform when actually they should spark a conversation about what is happening, why it’s happening, and what, if anything, the organization ought to do as a result” (2016, p. 41).
Next Step: Building the Skillset

Achieving an environment where data visualization can be an effective tool to tell stories, deepen understanding of users and/or make decisions requires one more level of discussion – one that is often bypassed once enthusiasm for the power of information narratives takes hold. There is a documented disconnect between the skillset required to create, analyse and understand data visualizations and that which is currently present in the workforce, inside and outside the library world (Hullman and Diakopoulos, 2011; Segel and Heer, 2010; Wakeling et al., 2015; Watson, 2017; Zoss, 2016). On the creator side, “visualization designers are “melding the skills of computer science, statistics, artistic design and storytelling” (Cukier 2010 cited by Segel and Heer, 2010, p. 1139), a tall order for most librarians or library technicians. Software platforms like Tableau do much to speed us past the hurdles of intricate programming (Murphy, 2015) but little to make us instant statisticians, graphic designers or communications professionals of any depth.

On the other side of the equation, “even when provided with optimum visualizations designed to encourage such thinking [as described above], users may lack the facility to perform it” (Wakeling et al., 2015, p. 17). Hugh Watson offers sage advice when he encourages us to “keep your audience in mind and don’t become so enamoured with the visualization that you forget the targeted users’ capabilities” (Watson, 2017, p. 6). A path forward in this area is presented by some within the library community. “As libraries become more advanced creators of data visualizations, they can also play a role in educating their users to become data literate consumers and producers of visualizations”. (Magnuson, 2016, p. xiii) This means playing a role within the realm of data visualization that libraries have long played in information retrieval and evaluation, doing our part to make data literacy part of the information literacy repertoire.

Conclusion

While we may lag behind business and the commercial world in our abilities and capabilities within data visualization, libraries can be at the forefront of this movement within the non-profit and education sectors. By drawing from the literature of other disciplines ahead of us on the learning curve (Hullman and Diakopoulos, 2011; Kosara and Mackinlay, 2013; Segel and Heer, 2010; Wakeling et al., 2015) and taking the library-specific conversations further, we can enter the next phase of our understanding of and success with data storytelling in a number of forms. Hopefully, as we expand our capabilities, we will keep in constant sight our audiences, our objectives and a facilitation of the pursuit of knowledge.

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Sustainable space assessment

From data collection to visualization and decision-making

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Introduction

“Space assessment” is comprised of methods for qualitative data collection, such as ethnography and behavioral mapping, as well as quantitative methods, such as gate counts and observational space counts. By striking a balance between the nuanced but resource-intensive qualitative methods and the low-effort but limited gate count data, observational space counts remain a widely-used method for libraries to understand how users interact with their spaces and equipment. However, libraries need tools for understanding observational space count data that’s as flexible as the spaces they’re trying to assess. Often, libraries are curious about how one area is used compared to the whole, how popular a particular kind of seating is by time of day, or how a space has changed over time in response to changing student needs—questions that are difficult to interrogate or understand with any degree of nuance when working from a complex table of numbers. This paper uses three case studies from the University of Washington (UW) Libraries to illustrate sustainable approaches to visualizing and using observational space count data to answer a variety of space-related questions.

The University of Washington is a large research institution with three campuses (Seattle, Bothell, and Tacoma) and a medical school. The UW Libraries is a member of the Association of Research Libraries (ARL), and includes 16 different libraries across the three campuses. Many assessment projects are customizable to individual libraries, and staff in specific units help guide project goals and are largely responsible for implementing changes based on the results. As a result, there is a lot of variety in the types of assessment conducted, even within the umbrella of “space assessment.”

At Foster Business Library, staff were looking for insight into student use of different types of seating and equipment in the building. They wanted to increase the value of low-use areas and make data-driven decisions about reconfiguring the space. The dashboard was built as an interactive map showing a snapshot in time that provides detailed usage patterns with the current configuration. At Bothell Campus Library, staff were less interested in a detailed breakdown; they wanted to see high-level occupancy by zone (quiet study, group study, etc) and to optimize seating capacity in high-use zones in response to changing student needs. This dashboard was built to support quick summaries of library space use and provides a tool for staff to project occupancy patterns based on adjusted seating capacity. The Hours Assessment project was a cross-library project to see if changes were needed to opening and closing hours at some smaller branch libraries. Observation data was collected during the first and last hour of the day, so the dashboard was built to highlight the full range of specific counts, with no aggregation, and had filters to drill down into increasing specificity by library, time of day, or time in the quarter.

Tableau dashboards and interactivity were key components to each of these projects. By building a map of the space and connecting it to the data, libraries are able to quickly see patterns and query them on the fly. The ability to subdivide and cross-section the data allows staff to answer the questions they’re particularly interested in and supports finding new answers to the questions they develop. Whether you’re considering a new space assessment project or trying to find a method that matches your needs and the format of your data, understanding some of the options for visualization can help identify sustainable solutions that can help you answer questions and make data-driven decisions about your space.

Discussion

Data model

Since each project visualized the results in a Tableau dashboard, it was important to set up a system for data cleaning and maintenance that would work for each different dataset. Some projects were conducted once; others were repeated for ongoing analysis. For the Hours Assessment project, the collection was not intended to be repeated, so the data cleanup was
largely self-contained. The projects at Bothell and Foster were intended to recur based on a sampling schedule for each library, so we needed to set up a sustainable system to work with the space count data in an ongoing way.

A variety of collection tools, including Google Forms, LibAnalytics widgets, and Qualtrics forms are used for data collection based on the needs and preferences of each library. As subscribers of both Tableau and Qualtrics, it was tempting to invest in the Qualtrics-Tableau connector, which would automatically shape the data and provide live updates to the Tableau dashboard. However, after discussion with the project teams, live, up-to-the-minute updates were not a feature they were looking for and would have restricted their ability to modify the form based on changes to the space. In all cases, the data would be summarized on a quarterly or annual basis, and not sampled regularly enough to justify the cost.

Instead, the dashboards were built with several datasets in parallel that could updated and maintained separately by the different project stakeholders. Use data was captured in the data collection form, cleaned, and saved. The capacity for each area was captured in a separate spreadsheet and all occupancy calculations were derived from these reports. Gate count data, if used, was exported from LibAnalytics. For the maps, a set of polygon coordinates were generated in a separate mapping folder and linked to the usage data. After an initial cleanup of each dataset, consistent naming for each area was used across all sources and collection methods to make relationships within Tableau easier to manage.

This system meant changes to a space can be updated by making discrete changes to the relevant file and refreshing the data source in Tableau. A change to the number of seats available in an area, for example, would only be updated in the capacity files, while a change in the shape or configuration of a space could be remapped and the original coordinates for the area would be replaced. Referring to numbers in a data source for occupancy calculations required some care in creating the initial calculations, as data duplication is an issue when joining and blending datasets, but it also means that changes are made in one intuitive place not in separate fields or calculations within various programs. The process of documenting the data cleaning and updating procedures in detail is still in progress, but any decisions and calculations are recorded in a project log for each dashboard that links to all relevant meeting notes and project files so there is a clear record of the steps involved.

Calculations

In some cases, as with the Hours Assessment project, using the exact count may be valuable to show the full range of values taken within a particular time or area. However, it is often helpful to use space count data to derive or aggregate numbers. Calculating an average can be done for daily, weekly, monthly, quarterly, or annual figures, while dividing count data by the total capacity of an area provide the percent occupancy. Sorting values based on average or total counts, while not specifically a calculation, can also help reduce the complexity of the information and help staff quickly identify highest- and lowest-used spaces or regions.

Visualization Types

When working with space count data, there are a few visualization and interaction methods that allow the data to help answer questions about the space. These are combined and repeated throughout the UW Libraries space assessment dashboards, which are explained in more detail in the Case Studies section below. While some charts may initially require training or explanation to understand, as their interpretation becomes more familiar, it becomes possible to use the same chart across dashboards and to add supplementary information that provides nuance and context.

Maps can help make sense of patterns within and through regions of a building [1]. They can help staff see how and where patterns of use differ between areas and to see how changes in one region might affect use in another. With dashboard actions, they can act as filters to drill down into results for one specific area. Location maps divide the library up by region—whether that’s a particular zone of a building or the type of seating—and are likely used on signs throughout the building and on instructions that illustrate where to record count data for each area. Choropleth maps, also known as population maps, show the number of visitors in a space encoded with saturation—the darker a region, the more people use that space.
Comparing how zones shift and change over time has not been a focus at UW, so these maps are all drawn with fixed boundaries that are replaced if regions within the library are redrawn. However, examples of maps that change dynamically based on user input can be found in the Tableau community, such as “The Changing Shape of History,” a visualization that uses filters and GIS data to show how the U.S. grew and expanded from 1640-1901 (Milligan, 2017).

**Bar charts** are simple graphical displays that show quantities within categories accurately and efficiently. They are particularly effective for making comparisons between categories, and can be used in a variety of applications in a dashboard. **Histograms** show the distribution of data rather than comparisons between categories, and can be useful when summarizing the data with different groupings—less than 25% full, 25-49% full, and so on. The size of each bin changes the overall shape of the data. **Stacked bars** can show the breakdown of use within an area. These are less effective than standard bar charts for making comparisons or understanding the data, so they should be kept to a limited number of categories (such as group and individual study) that provides contextual information only. **Uneven bars** are rarely useful for data aggregation, but can be useful to show things that have a start and end time, such as the opening and closing hours of the building.

![Figure 2](image-url)

Figure 2. Variations of bar charts in Tableau. (a) Standard bar chart (b) histogram (c) bar chart with reference band showing 75-100% occupancy (d) stacked bars showing the proportion of individual and group study at different locations (e) uneven bars showing open hours of different libraries, with inverse shading (more libraries open shows a lighter color, which gets darker as fewer libraries are open)
A **bullet chart** typically shows progress toward a goal, with an indicator showing a target and the bar showing progress toward—or past—that goal. Optional shading showing the percent of progress toward the goal helps quickly summarize the numbers. These have been appropriated to show occupancy, making it easy to see at a glance how full a space is and how near it is to capacity. They can be drawn to show percent occupancy, where 100% capacity is drawn the same for each area, or actual occupancy, which scales the capacity line based on the number of seats in an area.

![Figure 3. Bullet charts showing percent (%) occupancy (left) and actual (#) occupancy (right)](image)

Currently, patterns of use throughout the day or week are not features of the projects we have conducted. In one case, however, the data wasn’t robust enough to support conclusions so the chart was removed and the sampling schedule revised. However, since these kinds of summaries are often of interest in space assessment projects, we’ve included three visualization types below. Standard **line graphs** are less used, as most of the data is sampled and not continuous, but they may be of use for sensor-based counts or more intensive sampling. A **cycle plot** helps show how use data may differ across intervals, such as weekdays or weeks in the quarter. Variations that work better with sampled data are also included in the figure below. A **dual axis** chart shows continuous lines overlaid on bars, allowing users to compare parts to the whole (e.g., morning and evening counts compared to the full day). A **bubble matrix**, like a heatmap, uses color-coded circles to show periods of high and low use. These can be redundantly encoding with circle size as well for additional clarity. These charts are particularly useful because they allow you to quickly see gaps in the data where sampling may not have taken place or a count may have been missed.

![Figure 4. Variations on line charts and charts showing use throughout a day or week. (a) cycle plot (b) bubble matrix (c) dual axis chart](image)

Other chart types make sense in response to a particular type of question. For the Hours Assessment project, a **scatterplot** was used to show the range of counts taken over a quarter in the first or last hour of opening. A **calendar heatmap** was used to quickly summarize counts across the single month. For Foster Business Library, a **treemap** helped show the breakdown of the number of visitors per area or subdivision. While it is less easy to make comparisons with a treemap than a bar chart,
it was important to get all relevant information on a single screen without the need for scrolling. Treemaps, which use proportional subdivisions to show amount, can squeeze into an otherwise-difficult areas on a dashboard, as they do not require a particular size or shape in order to draw accurately.

![Figure 5](image)

Figure 5. Other charts useful for space count data. (a) scatterplot (b) calendar heatmap (c) treemap.

All dashboards also have interactivity through **dashboard actions**, as indicated in the figure below. This allows staff to select on information in the charts or maps and will have the data subdivided for the area they are looking at. The data will either be **filtered** and removed from the screen or **highlighted** to preserve context. Details are also available on **hover**, which pops up a tooltip window. Selections also interact with contextual/summary numbers (such as the average occupancy or total number of seats in an area. Some use dashboard actions in conjunction with dropdown filters.

![Figure 6](image)

Figure 6. Interactivity options in Foster Business Library dashboard. Selecting a type of seating (blue arrows) will show you where in the library the seating is available and highlight the % occupancy and average number of people in those spaces. Selecting a region of the library (orange arrows) will highlight the information about seating options and use of space in that particular area.
Case Studies

At Foster Business Library, space use data was collected in order to help staff test observations about under-utilized areas of the library and to imagine ways to reconfigure their spaces. Library staff wanted to know how changes to one space might impact the surrounding areas. Some of their key questions were:

- What students are doing in the library? When and how are they using our spaces?
- How do we optimize the space that we have? What needs are not being met with our current configuration?
- How might we adapt the rest of the library in response to changes?

The project used a mixed methods approach, including ethnographic observation and behavioral mapping. For the space counts, the library was divided by type of seating and tracked how students used each of the spaces (individually or in groups) to compare the popularity of types of seating and student working styles across the building. After an initial round of sampling, a focus on reconfiguring one space in particular led to the creation of detailed interactive dashboards based on the space count data, shown in Figure 7.

![Diagram of Foster Business Library space assessment project](image)

Figure 7. Tableau dashboard for Foster Business Library space assessment project. This dashboard uses a custom polygon map based on the floorplan of the library (a). The map is linked to bullet chart showing the % capacity of each area (b) as well as a treemap showing the average number of visitors during the sampling period (c). The capacity and type of seating for the library is provided at the top (d), and stacked bars showing group or individual studying (e) was provided for context. A consistent color palette links location across all charts in the view.

This dashboard pairs an interactive map with visualizations showing the average occupancy and average number of visitors across the sampling period. A stacked bar chart to the left of the bullet chart shows the proportion of group and individual seating in an area. This dashboard allows librarians to subdivide and cross section the observation data to answer many of the questions about their space, to see patterns of use across different regions of the building, and to see different narratives about the space.

One area (highlighted in the “orange arrow” example in Figure 6, above) was large, seldom used, and tucked away, leading to particularly close scrutiny for reconfiguration. The dashboard shows how prominent silent, individual study is at Foster, demonstrated by the low proportion of group study at table seating and individual study carrels being two of the top three most-used spaces in the library (“blue arrow” example in Figure 6). However, the area to be reconfigured was nevertheless the second-highest place for group study—second only to the group study rooms, which are often completely booked. These contrasting narratives of student use have informed decisions about a flexible learning space and staff are now prioritizing...
movable, soundproofed walls to better adapt to the group study overflow when needed. This project is ongoing, with some changes to the sampling schedule, to see whether initial prototypes are successful at increasing use of the space while preserving silent study throughout the main building.

Bothell Campus Library had been collecting space count data for years, but felt that they were using the data inefficiently, given how much time and effort it took to collect. They wanted to make the data more visible to campus administrators, and to be able to quickly report on how much time the library spent at various levels of occupancy. They also wanted to know if they were zoning correctly, as there was a fear of some sections reaching or exceeding capacity as student needs changed. They wanted the dashboard to prioritize the current use and space configuration, and to see what changes might be necessary going forward. Some key questions of this project included:

- How often is the library near capacity? Are any zones more likely to see heavy use than others?
- Does the current configuration meet student needs? Do we need to increase or decrease seating in particular zones?
- Is the library responding appropriately to changes?

Overall, Bothell Library was less concerned with granular detail than Foster. Almost all of their regions were a mix of tables, carrels, technology stations, and lounge seating, and they were more focused on the types of zones (quiet study, group study, and mixed use) rather than individual behavior within a zone. They were also more focused on quarterly and annual data, rather than granular use over the course of a day or week. It was more important to show what is happening currently with the capacity and space usage, though changes over time helped illustrate how the library was engaging with and responding to changing student needs.

Because parts of the dashboard would be shown to campus administrators, the main part of the dashboard focused on broad summaries and easily digestible numbers—how full the library was on average—and limited more detailed information within areas. However, the dashboard also needed to support staff use as well. Inspired by the workstations projections by Jeremy Buhler, the current dashboard draft leaves space at the bottom that pops up in response to selection of a particular area. This allows staff to drill down for additional detail about an area and fine-tune the seating in a particular area. While this project is ongoing and the utility of these models are still being tested, this dashboard uses interactivity for different purposes and audiences than the Foster project, above.

![Figure 8. Draft Tableau dashboard for Bothell Campus Library. This dashboard shows a map of the space and zones (upper left) and a bullet chart showing the average occupancy for each zone (upper right). The lower section appears when a particular region is selected and shows a more detailed breakdown of use over the past year (lower left) and histogram with parameters to adjust the number of seats in that region (lower right). Adjusting the filter up or down will shift the occupancy calculations on the right to fine-tune the space and refine the “danger zone” window.](image-url)
For the Hours Assessment project, staff were considering changes to the opening and closing hours of some of the smaller branch libraries. The team knew a few hours needed to be reduced and wanted the decision to minimize the inconvenience on students. Undergraduates hired specifically for this project collected total occupancy counts in seven different libraries in the first hour after opening and the last hour before closing, sampled throughout the quarter. Gate count data was also collected on the sampling days to give a sense of total traffic beyond these counts. Some of the key questions for this project included:

- What are lowest hours of use at various branches? Are these at the beginning or end of the day, or on weekends?
- What hours might be changed to accommodate the rise in wages, but minimizes the negative impact for students?

In this case, maps of the library spaces were not particularly useful. Because this question had an extremely narrow focus, patterns of use between regions of a building would not shed any insight on the questions asked, and any aggregation would hide the specificity that the observational counts were trying to highlight. Priority was given to the exact totals collected, with the average across all days provided for context. This allowed staff to see consistent patterns of use at some locations and contrast it to locations with more occasional peaks and valleys. Filters and supplementary charts, such as the patterns of use across the month and gate traffic throughout the day helped provide important contextual information to help guide decision-making. Two libraries on either sides of a walkway have the same hours, for example, but one reported less than four people in the last hour across all sampling periods. This branch will close an hour earlier, but students will have access to the other library, which will maintain regular hours. The dashboard helped staff ensure minimal students would be affected by changes in hours, ensure students would have access to another branch if the library opened later or closed earlier, and make data-driven decisions about staffing and hours based on observed behavior throughout the term.
Conclusion
While dashboards can be used as a way for librarians and library staff to make sense of complex usage data, they do not need to be a static or purely-administrative tool. Foster staff wanted to combine passive data collection with first-hand, personal narratives from students. They believed that speaking directly with students would help them better understand how and why students use the space and identify areas of improvement the staff may have overlooked. They worked to create a student advisory board, and the visual dashboards and maps provided a platform to engage students in the advisory committee. This closed the loop with users and invited them to bring their insights into the interpretive work and in imagining possible changes to the space. Bothell library will be able to balance internal and external stakeholders by taking screenshots of easily comprehensible maps and usage statistics for campus administrators and drilling down into more detail for internal use.

Mapping library spaces with Tableau has allowed UW Libraries staff in a variety of contexts and with a variety of needs to answer questions about and better understand the ways students use their spaces. They can test observations about under-utilized areas, imagine ways to reconfigure spaces, summarize and report on library uses to various stakeholders, and use the results of observational space assessment projects to make user-centered design decisions.

Notes
[1] For a blog post providing step-by-step instructions on creating these maps, please see Faber, 2016.

References


Ten years of transformational change, one step at a time
A LibQUAL+ study

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Introduction
This paper tells a story of change, continuous improvement and systematic assessment that began in 2007, spanned a decade and transformed library services at the University of Limerick (UL) in Ireland. This study considers ten years of both incremental and transformational change by exploring trends and patterns in LibQUAL+ user survey data from 2007 to 2016. Multiple LibQUAL+ surveys across the period provided a unique opportunity to investigate how users responded to the incrementally changing and gradually transforming university library.

Methodology
The University of Limerick LibQUAL+ survey data form the basis of this study. The survey was run for the first time in 2007 and from then in 2009, 2012, 2014 and 2016. A total of 9,388 surveys form the sample in this study. Table 1 shows the survey population breakdown by year and user group. The response rate to the survey grew each time the survey was run and response rates were deemed to be representative of each user population for all surveys. A high percentage of total responses were from the undergraduate population, which is reflective of the student population at UL, which in 2016 comprised of 14,000 undergraduates and 2,000 postgraduates.

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Table 1. Surveys completed from 2007 to 2016
Retrospective analysis of survey data from five surveys over a ten-year period was conducted to explore how changes and improvements in library services over the decade impacted on user perceptions. For the purposes of this study, improvement was determined by increases in the adequacy mean scores. The adequacy mean is calculated by subtracting the minimum mean from the perceived mean and is a reflection of how well the library is meeting its users’ minimum requirements. A negative adequacy mean is an indication that users’ minimum requirements are not being met and appears in red in the LibQUAL+ results notebooks.

Results

The LibQUAL+ radar charts for each survey illustrate how user perceptions of library services improved from 2007 to 2016. Scores increased with each survey and user perceptions steadily increased. In simple terms, the appearance of red in a LibQUAL+ radar chart indicates an area where the library is not meeting its users’ minimum requirements, i.e. a negative adequacy mean. The appearance of blue indicates a positive adequacy mean – the library is meeting its users’ minimum requirements. Yellow is the difference between the perceived scores and the desired scores. In broad terms, a library would ideally have no red, less yellow and lots of blue, indicating that users feel services are close to their desired requirements. Occasionally green appears in radar charts, where users’ perceived scores exceed their desired scores.

Figure 1. LibQUAL+ radar charts 2007 - 2016
Figure 1 provides the library’s radar charts for the five surveys. In 2007 the UL LibQUAL+ results indicated serious
problems with user perceptions of library services. Eight out of the 22 core questions had a negative adequacy mean and the
library was not meeting its users’ minimum requirements in either Information Control or Library as Place. In short, the
radar chart highlighted a lot of red. With each survey, as user perceptions increased, the number of negative adequacy mean
scores reduced. By 2016 only one question had a negative adequacy mean.

The results from analysis of the five surveys indicate that user perceptions were much higher in 2016 than they were in 2007.
Every question improved in the period, as did each of the three dimensions and perceptions for all three user groups –
undergraduates, postgraduates and faculty. These increases occurred in a very steady consistent way. Nothing dramatic
occurred in the period, the improvement happened incrementally. The data tells of a transformed library, one that worked
hard to improve library services, collections and spaces and one that is much closer to meeting its users’ needs.

Transforming library services 2007 - 2016

The user feedback in 2007 highlighted significant issues with the library building, the print and electronic collections,
borrowing services and the access routes to find information. The results were well below the UK and Irish average scores.
Following the survey an action plan was developed, improvements were put in place and the survey was run again in 2009.
The scores improved and a cycle of measure – improve – measure was developed. Thus began a programme of incremental
change and continuous improvement that spanned a decade and transformed library services at the University of Limerick.

A great many changes occurred at the University of Limerick Library over the period from 2007-2016, some were direct
outcomes of user feedback from LibQUAL+ while others arose from the change agenda set by wider strategy. Some were
low cost quick wins while others where more substantial changes involving significant investment of staffing and resources.

While it is not possible to list them all, the major changes and improvements in the decade are identified as follows.
Focused efforts and investment was directed towards collection development and automation of technical services processes.
The building was refurbished and library space was reorganised many times over the years to better deliver study areas that
enabled diverse activities, such as silent, quiet, group and collaborative work. Self-service facilities were provided and
staffed services were reorganised and centralised into a single highly visible service point.

Addressing low scores from postgraduate students in 2012, and in alignment with university strategy, the library targeted
improvements towards this user group through the creation of a Graduate Reading Room, the recruitment of a Librarian,
Research & Bibliometrics and the development of the ‘Realising Your Research Value’ programme. In 2017 a new website
and improved access to electronic resources was introduced and a new library extension scheduled for completion is 2018
was underway.

Continuous improvement and change management

Continuous improvement and change is managed at UL Library through over-arching strategy, an annual plan and a Quality
Improvement Plan (QIP), each of which are inter-linked. The Quality Management System for support divisions in the
university requires improvement to be based on sources such as user feedback, staff feedback, data and statistics and process
reviews. LibQUAL+ forms a large part of the user feedback. Following each survey, the comments and a summary of the
results are shared will all staff. All departments and teams consider the results and make suggestions for improvements.
These are agreed by library management and actions are added to the QIP. Ownership of actions is assigned to the relevant
heads of department and a project management approach is often employed to implement changes. The actions are reviewed
regularly as part of the library’s planning cycle and are removed from the QIP when completed. Communication with the
student community and the students’ representative body forms an important component of the process.

Librarians at UL developed a great deal of experience in change management over the decade. Automating processes,
implementing new technologies, introducing new services, transforming library spaces – these present predictable challenges
when it comes to staffing, resourcing and buy-in from stakeholders. LibQUAL+ brought many great benefits to the organisation, but possibly the greatest of these was to normalise change. The typical change cycle occurs with all the predictable pain points and challenges, but staff have developed sufficient experience to understand and navigate the process effectively. Above all, the process is enabled by a shared understanding of the rationale for change – to improve services for the benefit of library users.

The improving LibQUAL+ scores provide evidence to staff that the change programme is greatly appreciated by library users and is therefore worthwhile. The increasing scores have also been particularly useful in demonstrating the library’s effectiveness to university management, as they illustrate a long record of successful change focused on innovation, automation, university strategy, international trends and above all, user needs.

Conclusion

Over the course of ten years library users’ satisfaction levels consistently rose through a systematic step-by-step approach to driving continuous improvement based on user feedback. In the five iterations of the survey, the University of Limerick’s LibQUAL+ scores steadily increased, indicating that the library’s continuous change programme had impact and that readers’ perceptions of the quality of library services greatly improved. Through systematic assessment and listening and responding to library users, small steps turned into big leaps and incremental change became transformational.
Introduction

Library assessment and performance measurement have turned to qualitative approaches including narrative and ethnographic methods for more meaningful demonstrations of the value and impact of services and facilities (Brophy, 2008; Calvert and Goulding, 2015; Khoo et al., 2012; Ramsden, 2016). Reflective practice, including analytic reflection and particularly reflexivity, is a “core characteristic” of qualitative inquiry (Creswell, 2014, p. 102), especially in data analysis and report writing (Patton, 2015; Saldaña, 2015); it is a significant feature of the qualitative approaches of narrative, phenomenological, grounded theory, ethnographic and case study research (Creswell & Poth, 2017). Reflection is particularly associated with practitioner research as an explicit step in the classic (participatory) action research cycle of planning, acting, observing, and reflecting, a social research strategy that has been described as “simply a form of self-reflective enquiry” (Carr & Kemmis, 1986, p. 162) and characterized as “critical self-reflective practice” (McNiff, 2013, p. 23); it is also an integral part of interpretive, participatory, and collaborative approaches to evaluation, where it forms the basis for dialogue and validity testing (Goodyear, 2005).

Popular research methods texts in our own field also acknowledge the importance of reflection and reflexivity in research, referencing their role in developing a research question, formulating a hypothesis, and locating the researcher ideologically and surfacing their assumptions, in addition to noting their use in specific methods, techniques and procedures, (e.g., participant observation, research diaries, and discourse analysis; transcribing interviews coding data, and presenting findings), again highlighting their contribution to action research, ethnography, and case study, where reflective journals typically play a vital role in data collection (Connaway and Radford, 2017; Pickard, 2013; Wildemuth, 2017; Williamson, 2002). Library and information science (LIS) scholars also emphasize the role of reflection in evidence-based library and information practice (EBLIP): Hernon et al. (2014, pp. 25-26) describe how reflecting on the outcome of decisions made via EBLIP can transform tacit learning into explicit “reflective knowledge” and thus contribute to the professional knowledge base. Brophy (2009, p. 4) similarly characterizes evidence-based practice as “an iterative approach where practitioners reflect on and learn from their experience”, and Wilson (2016, p. 89) confirms that “Undertaking reflective practice is a crucial component” of being an evidence-based practitioner researcher.

In addition, Brophy (2009, p. 63) points out the distinctive contribution of reflective practice in identifying problems needing investigation by practitioner-researchers, noting that “One common feature of reflection is the recognition of a problematic situation where different courses of action were possible”. Hernon et al. (2011) also acknowledge the contribution of reflection to identifying a research problem by describing the entire conceptual/pre-empirical part of the research process as “reflective inquiry”. However, overall, coverage of reflection in LIS books on research, evaluation and assessment methods is disappointingly limited, especially when compared with other social research methods texts, and our literature is particularly deficient in practical guidance, with a noticeable shortage of the types of reflective frameworks, models, and tools that populate the literature of other social science disciplines and professions. Our project targets this gap, using (appropriately) a participatory action research design to explore the development of a reflective practice toolkit for the library and information field, and we have chosen the information literacy and library assessment communities as our primary testbeds as groups with an evident interest in developing competence and building capacity in research, evaluation, and evidence-based practice.

Our approach has involved first surveying and reviewing published work on research methods and reflective practice to identify methodologies, techniques, and tools with potential for application in our domain; next, appraising and assessing...
promising candidates, and considering their suitability for adoption or adaptation in specific professional contexts; and then producing explanatory guidance for selected tools, presenting them to practitioners in workshops at conferences and in other settings, and inviting feedback from participant audiences that we can use to review and refine (or reject) candidates, as we move through successive cycles of searching, retrieving and testing in different venues. Depending on the time available, we invite workshop participants to engage with our handouts, participate in reflective and reflexive activities, or simply consider and discuss the proposed methods, and evaluate prototype tools from their perspectives as assessment practitioners.

Our intentions and expectations for participants are that as result of attending the workshop, they will have:

• fuller understanding of reflective practice and its relevance to library assessment;
• opportunity to practice reflective thinking, reflective writing, and reflective dialogue;
• raised awareness of tools supporting reflective practice in particular contexts; and
• continuing access to bespoke documentation, including early sight of project findings (subject to providing contact information to the workshop facilitators).

The workshop reported here was a shorter version than originally proposed, with limited opportunity for practical work, but sufficient time for the tools selected to be introduced and explained (with the support of slides and handouts) and briefly discussed. The following sections provide edited versions of the workshop material for the four tools presented:

• Reflective practice process for developmental evaluation (Patton, 2011)
• Triangulated reflexive inquiry questions (Patton, 2015)
• Reading data three ways (Mason, 2002)
• Analytics memos reflection topics (Saldaña, 2015)

Working Definitions of Key Terms and Concepts

Reflection is a deceptively simple idea that is easy to understand at a basic level, but surprisingly hard to put into practice. The concept of reflective practice has been described and defined in many different ways, and the situation is complicated by the existence of several related terms, such as “critical reflection”, “reflectivity”, and “reflexivity”, which have overlapping meanings and can be interpreted differently in different contexts. For the purposes of the workshop we offer the following working definitions to promote shared understanding; a more extended discussion of the concept and its evolution is provided by Corrall’s (2017) review in the Journal of Information Literacy.

Developmental evaluation is a particular form of evaluation where the focus is on change or innovation in complex dynamic environments; also known as real-time evaluation, emergent evaluation, action evaluation, and adaptive evaluation, it is contrasted specifically with formative evaluation and summative evaluation (Patton, 2016).

Reflection can be simply defined as “the ability to think about the past, in the present for the future” (Carroll, 2009, p. 43); or, alternatively, as “a form of mental processing – like a form of thinking – that we use to fulfil a purpose or to achieve some anticipated outcome (Moon, 2006, p. 37)

Reflexivity in turn is “the ability to look both inwards and outwards to recognize connections with social and cultural understandings” (Fook & Gardner, 2007, p. 27), and “thinking critically about what you are doing and why, confronting and often challenging your own assumptions, and recognizing the extent that your thoughts, actions and decisions shape how you research and what you see” (Mason, 2002, p. 5).

Reflective Practice Process for Developmental Evaluation

Michael Quinn Patton (2011) characterizes his reflective practice process for developmental evaluation as an interactive data-based, story-based, and engagement-based approach to evaluation, which immediately signals connections with contemporary concerns in library assessment and evaluation, where qualitative approaches using narrative/story-telling are
increasingly regarded as useful counterpart to traditional quantitative methods. Figure 1 provides an overview of the process in the form of a reflective practice cycle, emphasizing that developmental evaluation should be seen as an ongoing process, i.e., an iterative strategy, enabling practitioners to engage in continuous assessment in a dynamic operating environment.

Figure 1: Reflective practice cycle for ongoing developmental evaluation

Patton (2011, pp. 266-269; 2015, pp. 215-216) elaborates the basic four-part cycle into a process of eight steps, which are described in both his 2011 book on Developmental Evaluation and his classic text on Qualitative Research & Evaluation Methods, now in its fourth edition. The steps are presented below in an abbreviated and adapted form, summarizing his guidelines and substituting library-related examples to illustrate how the process might be used in our field.

1. Group identifies a focus for inquiry and learning. An important (sensitizing) concept, basic premise, or fundamental value often offers a useful focus: an idea that provides direction and vision to the desired change but the meaning of which is still emergent. For example, transforming academic liaison from a service-as-support to an engagement or partnership model.

2. Turn the concept, idea, value, or vision into an experiential inquiry question. The question is not an abstract question for intellectual discussion. It is a question that evokes experience. For example, what experiences have you had of successfully engaging or partnering with students or faculty?

3. Participants in the reflective practice group share their personal experiences (real-life anecdotes, lived experience stories) that respond to the question. Note that they must use firsthand experiences and tell the story in 3-5 minutes (don’t explain or analyze).

4. Group members can ask short clarifying questions. This is not a time for discussion or analysis. The focus is on understanding the story, on what happened and why. Note the need to agree confidentiality, be prepared for emotions/strong feelings, and enforce time sensitively.

5. After all stories have been shared, participants are asked to identify patterns and themes in the stories. Note that patterns are common specific observations, while themes are more categorical general topical cross-cutting meanings.

6. If there is more than one group engaged in the reflective practice exercise, each group reports their themes and patterns to the full group. The facilitator records the themes and patterns, and combines those that appear to be similar or duplicative. Note the need to identify person(s) to report out.

7. Once patterns or themes are identified, turn to implications (discussion and analysis). The group picks one or two themes that have important implications for the work at hand. The members discuss those implications. This often involves identifying important lessons: look for lessons learned.

8. Generate action agreements and next steps for future reflective practice. Formulate another question…
Patton (2011, 2015) also suggests a few variations on the basic process and offers some additional guidance.

- People come prepared with their stories written in advance. This can increase thoughtfulness and anticipation, and makes it far easier for the developmental evaluator to capture the stories (data) from the reflective practice participants. Potential downside: Less spontaneity.

- Tape the stories as a group record and transcribe them so the developmental evaluator – and the group – has a record of the “data” from the stories. This is only for the group’s use, keeping in mind agreement about confidentiality.

- If the reflective practice stories (as opposed to just the patterns and themes) are to be used for formal, external evaluation reporting, how the stories are reported (e.g., whether identities are disguised) has to be negotiated with the reflective practice group and informed consent procedures followed.

- Instead of simply listing themes, arrange them into a generic story or systems map showing how themes are interrelated and interconnected (spider web of themes rather than a linear list).

- A variation on the sharing process with large groups is to do a second round of thematic analysis after the first round. So, let’s say we have a group of 25. Five small groups of five people each engage in the initial reflective practice process. Then, instead of reporting their themes to the full group, each group numbers off from 1 to 5. Everyone has a list of themes from their group. The 1s assemble as a new cross-cutting group; likewise the 2s, etc. Now we have five new groups that can synthesize the patterns and themes they bring from their first-round-of-analysis groups. These groups then report to the whole group, which as a whole synthesizes the final set of patterns and themes.

**Reflexive Questions: Triangulated Inquiry**

“the mindfulness of reflexive triangulation”

In qualitative research and evaluation, the researcher is the instrument of inquiry, especially in the collection and analysis of data. Your professional and/or personal background, interests, and motivation for the project may have implications for the study, which could be positive (e.g., facilitating access to research subjects, adding credibility to the interpretation of results) or negative (e.g., raising questions about potential bias). The qualitative researcher needs to reflect on such issues at each stage and in every step of their project, from designing a study and reviewing the literature, through to dealing with data, discussing the findings, and reporting your conclusions.

The report of a qualitative study should therefore explain the position and perspective of the researcher to improve the validity of the data and results, and verify the quality of the research. As a minimum, you should clarify whether you perceive yourself as an outsider or insider; as an expert or learner; and conducting the research on, for, or with the people in the setting studied (Blaikie, 2007). However, “good” qualitative research practitioners provide more than simple autobiographical description; they include discussion based on analytical reflection of how their culture, gender, history, and personal experiences have shaped all aspects of their projects, from the formulation of questions to their expectations of outcomes (Creswell & Poth, 2017).

In other words, you need to “Be reflective and reflexive”, monitoring your thought processes and decision-making criteria; being in touch with your predispositions, biases, fears, hopes, constraints, blinders, and pressures; observing yourself and learning about yourself, and your analytical processes, cognitively and emotionally (Patton, 2015, p. 523). As a reminder, reflexivity here means

“thinking critically about what you are doing and why, confronting and often challenging your own assumptions, and recognizing the extent to which your thoughts, actions and decisions shape how you research and what you see” (Mason, 2002, p. 5).
Patton’s (2003) Qualitative Evaluation Checklist suggests you not only reflect on such questions, but also record your responses in field notes, and then write about your experiences, thoughts, and feelings in your research reports. In particular, he advises researchers to

“Consider and report how your observations may have affected the observed as well as how you may have been affected by what and how you’ve participated and observed. Ponder and report the origins and implications of your own perspective.”

Patton’s (2015, pp. 72, 604-605) concept of **triangulated reflexive inquiry** offers a framework that researchers can use to work through these issues during data analysis and report writing, and to develop the required self-awareness, based on three sets of questions about

- the researcher (the self-reflexivity question);
- the researched (the subjects, participants, or co-researchers); and
- the audience (the recipients, third parties, or public of the research or evaluation).

Again, this is nicely illustrated in a triangular diagram, as shown in Figure 2, which has been adapted from Patton’s (2015, p. 72) model, by editing the questions to aid clarity and legibility.

**Figure 2: Reflective Questions: Triangulated Inquiry**

The complete list of questions suggested by Patton (2015, pp. 72, 604-605) are reproduced below:

**Questions about the people who are studied:**
- How do participants know what they know?
- What shapes and has shaped their worldview?
- How do they perceive me?
- Why? How do I know that?
- And how do I perceive them?

**Questions about myself as qualitative inquirer:**
- What do I know?
- How do I know what I know?
- What shapes and has shaped my perspective?
- How have my perceptions and my background affected the data I have collected and my analysis of those data?
- How do I perceive those I have studied?
- With what voice do I share my perspective?
- What do I do with what I have found?
Questions about people who receive the study:

• How do audiences make sense of what I give them?
• What perspectives do they bring to the findings I offer?
• How do they perceive me?
• How do I perceive them?
• How do these perceptions affect what I report, and how I report it?

Reading Data Three Ways

In her classic text on Qualitative Researching, Jennifer Mason (2002) repeatedly poses the question of how you as researcher intend to “read” your data. She identifies three options: a literal reading, an interpretive reading, and a reflexive reading, noting that researchers may choose to read/analyze their data at all three levels; which we strongly recommend, as by consciously analyzing your evidence literally, interpretively, and reflexively – and being explicit about how you are approaching your analysis – you can enhance the validity of your results. Note that your intentions here also have implications for how you collect/generate your data and field notes, and for how you represent them as text or graphics in writing-up and presenting your work, so you really need to think about your approach to data analysis from the outset of your inquiry project.

Mason (2002) provides examples of different readings in her book from various settings, which illustrate how her model might work in practice. In summary, a literal reading will focus on elements such as form, content, structure, sequence, style, and layout (e.g., the form and structure of dialogue, the words and language used). In contrast, an interpretive reading will go through or beyond the data to construct/document what you think they mean or represent (i.e., not only what is contained in a document or image, but what or who is not there; also the context of production, consumption, interpretation and use). Finally, a reflexive reading will locate you as part of the data and explore your role, perspective, and influence in their generation and interpretation (e.g., via triangulated inquiry).

Analytic Memos Reflection Topics

In his popular Coding Manual for Qualitative Researchers (already in its third edition), Jonny Saldaña (2015, pp. 43-65) devotes a whole chapter to “Writing analytic memos about narrative and visual data”. He describes the reciprocal relationship between the coding of your data and your understanding of the phenomenon of interest, explaining how memos in qualitative research serve a function similar to laboratory notebooks in experimental science, but are particularly important in facilitating reflection and researcher reflexivity on the data corpus.

Drawing on other qualitative research scholars, Saldaña (2015) describes how writing memos encourages you to think critically about what you are doing and why, to challenge assumptions, and to recognize the extent to which your thoughts, actions, and decisions shape how you conduct your study and what you discover. He uses several metaphors from other authors, including the idea of viewing your memos as conversations with yourself, or letters to a friend. He advises giving your memos descriptive titles and evocative subtitles to enable later retrieval from your database. There is a potential overlap between memos and field notes here, and Saldaña (2015) suggests that you extract analytic memo-like commentaries from field notes for separate storage in a file or folder devoted to analytic reflection.

“…whenever anything related to and significant about the coding or analysis of data comes to mind, stop whatever you are doing and write a memo about it immediately…. Do not rely on ‘mental notes to self’”

Memo writing can be either reactive (i.e., responding to insights that occur during coding or during other research tasks or personal activities) or proactive (i.e., deliberately taking time out to reflect on your research. Saldaña (2015) recommends and discusses 12 topics for reflection during data collection and analysis, arguing that analytic memos are opportunities for you to reflect on and write about:
• how you personally relate to the participants and/or the phenomenon
• your study’s research questions
• your code choices and their operational definitions
• the participants’ routines, rituals, rules, roles, and relationships
• emergent patterns, categories, themes, concepts, and assertions
• the possible networks and processes (links, connections, overlaps, flows) among the codes, patterns, categories, themes, concepts, and assertions
• an emergent or related existent theory
• any problems with the study
• any personal or ethical dilemmas with the study
• future directions for the study
• the analytic memos generated thus far
• the final report for the study.

Saldaña (2015, p. 54) concludes the chapter by describing analytic memo writing as the transitional process from coding to the more formal write-up of the study. Your reflections on the 12 topics listed together generate material that may serve as the basis for formulating a set of core ideas for presentation and thus contribute to written presentations of your findings. Substantive memos based on rigorous reflection on your data may also contribute to the quality of your analysis.

Conclusion

The four tools presented were generally welcomed as useful frameworks that could make it easier for assessment practitioners to understand the essential contribution of reflection to research and evaluation, and to develop their abilities as reflective and reflexive researchers. Key takeaways for the workshop facilitator include the desirability of customizing such tools to the LIS domain by providing meaningful examples from real-world practice to illustrate how they could be used in a library or information service setting. The next stage of our project will focus on developing context-specific examples and guidelines before re-testing the tools with other practitioner groups.

References


The use of academic libraries in turbulent times:

Student library behaviour and academic performance at the University of Cape Town

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Introduction

In this article we chart the development of a Data Warehouse at our institution, the University of Cape Town (UCT), which has allowed us to undertake a pioneering study (in South Africa) in documenting the link between student behaviour and academic performance. We briefly outline the design process of the Warehouse which was conceived and implemented at a critical time in Higher Education in South Africa: one of unprecedented nation-wide student protests, the consequent grappling of universities to meet the needs of poor students – both access to and an improved experience of the university environment – and the general student demand for transformed universities and curricula. We describe this context paying particular attention to the impact on the university library which is having to defend its funding insofar as it contributes to the solution of the problems informed by government responses; for example, its renewed focus on the imperative to increase student throughput while improving teaching and learning outcomes. The focus of accompanying policy shifts and commentary has been on the plight and experience of the majority of students who tend to be poor, first-generation students and the ones leading the movement against exclusion. In this section we analyse the discourse surrounding the conflict focusing in particular on the shift from the student-as-problem (the deficit model) to the student-as-agent, a perspective raised by attempts to articulate a new approach to a decolonised curriculum (Godsell and Chikane, 2016).

In our discussion of methodology, we account for our decision to focus on students according to a specific attribute, i.e. beneficiaries of the National Students Funding Agency, a surrogate that yields a sample of students fitting into the category of poor and mainly black (i.e. not white according to racial classification that is maintained for purposes of historical redress). This focus is warranted by the central theme animating the students’ cause at all campuses – that of race (Nicolson, 2016), succinctly captured in the slogans “Black pain” and “White privilege”.

After the presentation and discussion of results we conclude by identifying future lines of inquiry that we argue will yield a more comprehensive account of the value of the library at the University of Cape Town.

#FeesMustFall – Impact on University Libraries

Since 2015, all universities in South Africa have been affected by national student protests whose main rallying cry, “#FeesMustFall”, has mobilised students to make a variety of demands on university managements and the national government, some generalised and others more specific to the students’ particular institutions. The general demands are for free education for all students, and a “decolonised” curriculum. In addition, localised student formations have formulated specific grievances at individual universities relating to particular policies, for example, to the use of the Afrikaans language as a medium of instruction. Universities that were reserved for whites under apartheid have been charged to change their culture, by, for example, creating a physical and symbolic environment that is inclusive of all students, recognising and reflecting the cultural background of the majority of students in South Africa, that is students who identify as black. The rhetoric accompanying protests and demonstrations has to a greater or lesser extent proposed a binary polarised spectrum locating students as either feeling “black pain” or expressing and exerting “white privilege”, and has called for the “decolonisation” of higher education. The protests have, on occasion, been accompanied by damage to property, including the burning of the Law Library and its valuable collections at the University of KwaZulu-Natal, and the destruction of
artworks at the University of Cape Town. A few months before the end of the academic year in 2016, with campuses across the country shut down by protesting students, there was a real prospect that the entire academic project would be derailed if the suspension of academic activities persisted until the end of the year without final examinations being allowed to be written. This disaster was averted through a variety of agreements negotiated with the main groups and formations identified as leaders at all universities. In 2016 the national government set up a commission to examine the feasibility of free education for all students; it has not yet reported its findings. The academic year opened relatively calmly in January 2017 when delayed exams were written to complete the 2016 year, and when the new academic year started. In the meantime, to facilitate registration in 2017, *ad hoc* financial relief was afforded by the government to students whose family income qualified them for these grants.

Godsell and Chikane (2016) observe that the protests and accompanying debates have revealed a number of new insights about teaching and learning at the university. They note:

Public and university opinion on student pass-rates, or throughput has portrayed students as being in deficit. First-generation students, in particular, have been seen as inadequate students bringing problems (poor basic education, inadequate language skills, lack of books in the home, absence of computer skills) with them onto the campus. … The Fallist movement focuses attention on the problems, previously concealed, which are embedded in systems and structures on campus … and a narrative begins to take shape which is campus-as-a-problem, even society-as-a-problem, rather than simply student-as-a-problem (2016: 55).

The particularity of the demands – for example, free higher education, a decolonised curriculum in which African scholarship is acknowledged and taught (Gumede, 2017), and an end to the perceived racism experienced on campuses – cannot be extricated from the problems of education experienced by the majority of the (black) population. Nicolson (2016) points out the dismal rate of progress through primary, secondary and tertiary education of black children and youths: barely half the cohort that started school in Grade 1, will make it as far as the final year of schooling, with very few of those entering into university.

This general overview of unprecedented student mobilisation and protest serves as an introduction to the situation at the University of Cape Town and its library, our research site.

**Disadvantaged undergraduate students**

Godsell and Chikane (2016) advise that in the process of curriculum transformation to accommodate all students, the tendency to blame students for academic performance that does not meet standard expectations, is unwarranted. Many initiatives at SA universities that aim to address educational disadvantage are based on such “deficit” assumptions that tend to alienate students and undermine their confidence in their own ability to participate on an equal footing with their more privileged peers. As was made very clear by the “#FeesMustFall” movement as discussed above, students often say that they do not feel welcome on more privileged campuses and do not find themselves fully integrated in campus life and find it difficult to make successful transitions from their schools to university. In order to address a situation such as this, the “capability” approach, first conceptualised by Amartya Sen, suggests that students would benefit if they had the freedom to choose how to participate actively in their own learning (Calitz, Walker and Wilson-Strydom, 2016:59).

In identifying dimensions of equal participation, Calitz, Walker & Wilson-Strydom note a lack of academic resources “such as textbooks, photocopies and the Internet” (2016:62) as one of the prime factors in the marginalisation and exclusion of disadvantaged students. Although they make no specific mention of libraries, it is our contention that the services and resources provided by the UCT library indeed go some way towards enabling students to exercise agency over their own learning and to reduce the perceived learning deficits of students receiving financial aid, our indicator of disadvantage. In support of this contention, Mezick (2007:562) proposes that library use is a positive factor in students’ integration into the institution and therefore in student retention.

Recently there has been a surge in literature providing evidence of correlations between student achievement and various aspects of library use such as loans, e-resource use and physical visits to the library. At Wollongong, Cox and Jantti found strong correlation between students’ use of library resources and their grades (2012:311). Similarly, Stone and Ramsden...
from the University of Huddersfield managed a project over eight UK universities, which was able to confirm a statistically significant relationship between aspects of library use and student success (2013: 556).

Similar correlations have however not yet been investigated that specifically focus on less privileged students who come to the university without much library experience or established library habits. As discussed above, investigations into the South African situation have shown that class and race differences result in experiences of marginalisation and of exclusion among students, detrimentally affecting their academic participation and engagement with the learning process (Calitz, Walker and Wilson-Strydom, 2016:62). With this in mind, we wish to propose that an accepting and academically supportive environment such as can be found in an academic library may play some role in addressing experiences of exclusion and supporting learning.

Students who are beneficiaries of financial aid frequently come from schools and environments where access to information technology and libraries is very limited, with the result that library habits are either poorly established or not established at all. In order to assist redress, considerable opportunities for self-directed learning are available to UCT students to establish and enhance the development of library habits, for example support in information commons venues and in the provision of online training tools.

Data Warehouse

In 2014, mindful of investigations from institutions such as Wollongong and Huddersfield where very interesting correlations have been obtained from institutional data storage facilities that contained both student data and records of different aspects of library use by the entire student body, the Library and Information Studies Centre (LISC) at UCT applied for funding from the South African National Research Foundation. The application was for a Library Values Project which inter alia would explore issues such as the link between library use and student achievement, an ongoing concern among LISC staff.

At the same time, the University was implementing a Business Intelligence Project that was intended to combine large institutional financial and student-based databases into a single Data Warehouse. The Strategic Intelligence Committee at UCT evaluates and prioritises applications for projects to have data included the Data Warehouse, and linked with existing data. Such projects are expensive and time-consuming and the Committee was initially sceptical when the library approached them with the request to have library data included in the warehouse. The library’s first project application was therefore not approved. A second application, re-emphasising the practical value of the project and the argument that this data would make it possible to extract meaningful correlations that could objectively affirm the value of the library and show the role of library services in student retention, success and throughput – eventually swayed the Committee and was successful.

A number of library colleagues were, rightly, concerned that data should be securely anonymised, so that the library activities, and success or failure of individuals would not be evident. This seemed a serious stumbling block at first and the application to the Strategic Intelligence Committee was delayed until such an assurance of anonymised data was obtained. It was agreed that these correlations would be made available to LISC and library staff on a broad faculty-by-faculty level only, so that there would be no possibility of identifying individual students which could result in ethical difficulties owing to concerns about the confidentiality of data.

The project was a lengthy one – six months for securing library data from various sources, and rendering these data segments compatible, together with the establishment of the data reporting structure. A further six months of close working between library staff and analysts in the university’s Information and Communication Technology Services (ICTS) Department was necessary to ensure the integrity and completeness of the reported data and to generate a series of further reports as new possibilities and needs became evident. The sudden awareness of new reporting possibilities, in particular, is a good illustration of how the existence of such a tool as the Data Warehouse can suggest its further, unexpected and inventive, uses.
The library was accordingly able to input into the Data Warehouse data of library use expressed as card swipes upon entering the library, and loans of library material. Additionally, it is hoped that data relating to the use of electronic library resources such as databases and electronic journals will be added to the Data Warehouse in due course.

The aim was to see whether the Data Warehouse could provide us with data showing student achievement as reflected by pass rates or grade point averages (GPA), correlated with library use. The student data should be selected according to parameters such as by faculty, or globally for the university as a whole, and for undergraduates or postgraduates. For the purposes of this investigation, we extracted data from undergraduates only. Our queries could also distinguish between students who were recipients of financial aid through the National Students Funding Agency, and those who were not. It needs to be emphasised that positive correlations do not imply causation and that we are not claiming that increasing library use alone would result in improved grades.

Looking back at the project, it is clear how the complexities of securing and combining library data with other datasets were underestimated by project proposers, and how much is owed to the dedication of the ICTS staff members, who went far beyond their strict remit in order to make it all work.

**Library support at UCT**

When students first come to UCT, they are encouraged to sign up for one of the many sessions introducing the library that are held in the first few weeks. Although not a great deal of library knowledge can be imparted in such introductory sessions, students learn about the basic services and facilities available to them in the library and are introduced to the information commons venues and the 24/7 facilities that are heavily used by undergraduate students throughout the academic year. They are also shown the large number of online library instruction packages available from the library web site and which come in formats ranging from online LibGuides or PowerPoint slides (see [http://www.lib.uct.ac.za/lib/guides-tutorials](http://www.lib.uct.ac.za/lib/guides-tutorials)) to online video tutorials and games.

These resources and services have been developed in the UCT Libraries to support students’ agency and their own control of their library use. One of the most popular library facilities, the undergraduate information commons, is known as the “Knowledge Commons” and has been functioning since 2002. It was the first of its kind in South Africa and was based on the commons concept first introduced by Beagle (1999). It aims to foster information and learning skills among undergraduate students. (A different facility, known as the Research Commons, is specifically aimed at the needs of postgraduates.) “Commons” resources may be superficially similar to computer laboratories, but they are designed to offer learning and study spaces providing seamless service that does not distinguish between assistance with library and learning issues and computer problems. They give integrated access to electronic information resources, software and computer equipment to enable the completion of writing assignments and research projects from the conceptualisation stage to final production in a single, fully supportive environment, often referred to as the “one-stop shop” approach (McKinstry and McCracken, 2002).

Such dedicated learning spaces have become common and very popular in academic libraries, and an extensive study in 2015 showed that the UCT Knowledge Commons was heavily used and highly valued by undergraduates who said that they wanted to work there rather than anywhere else on campus. They believed that working in that particular venue made a positive difference to their academic achievements, assisted them in their learning and improved their grades (De Jager, 2015). This present investigation aims to build upon these findings to continue with our exploration of evidence for the tangible value of library services to undergraduate students and, so far as we are able to identify them, to students who come to university with economic, and by implication also academic, disadvantages.

In order to foster its aim of enabling students to take ownership of their learning, the UCT Libraries have furthermore developed a range of online learning tools designed or developed by subject librarians for self-directed learning. These are available from the library website ([http://www.lib.uct.ac.za/lib/research-help](http://www.lib.uct.ac.za/lib/research-help)). The main tools for undergraduate students are the following:
LibGuides are developed by subject librarians on a department by department basis. A case study by Chiware at UCT in 2013, for example, shows that when a librarian develops course-appropriate LibGuides and teaches students how to use them, the use of the LibGuides increases substantially and students find them very helpful (Chiware, 2014:30, 34).

Vula, the UCT electronic course management system is used by many subject librarians to embed links to the library, and it functions as a gateway to specific subjects and how-to resources. Individual librarians tailor the guides for which they have responsibility; at times most imaginatively. Students in political studies, for example, may use the in-house game “Mistress Serendipity’s Library” to encourage and enable them to read beyond the reading lists in their particular subject field. (http://libguides.lib.uct.ac.za/Political_Studies/MistressSerendipity)

The extent of the use for some of the commonest LibGuides is illustrated below.

![Figure 1](image1.png)

How-to videos have become very popular since their inception in 2014. They cover a wide range of topics (http://www.lib.uct.ac.za/lib/how-to-videos) that explain the use of specific library resources and services; the graph below (Figure 2) shows the most accessed topics in 2014-2016:

![Figure 2](image2.png)
Ask a librarian is a feature which consists of either pre-formulated questions, which may be accessed with a click, or a text box in which free-text questions may be typed. This feature was first introduced at the beginning of 2015, hence the spike in usage when it was first introduced – see Figure 3.

![Ask a Librarian - FAQ & Online](chart.png)

**Figure 3**

Although we do not have corroborating evidence for this, we have noted that the increase in use of FAQs in October 2016 coincided with the closure of the library to students during the #FeesMustFall protests, possibly providing further evidence for students engaging with library resources even when in-person library services were not available.

Another library resource that is frequently used, but for which downloads are not recorded at present, is the referencing guide produced by librarians for the Humanities Faculty, which has recently been published as an electronic book. The UCT Author-Date Reference guide is available at [http://webcms.uct.ac.za/sites/default/files/image_tool/images/25/resources/UCT_Author_Date_referencing_2016.pdf](http://webcms.uct.ac.za/sites/default/files/image_tool/images/25/resources/UCT_Author_Date_referencing_2016.pdf).

**Findings from the Data Warehouse**

We were delighted to discover that our findings indeed supported our expectation that library use correlated with undergraduate achievement. Figure 4 below clearly illustrates how GPAs of all undergraduate students increased as they visited the library more frequently.
Although not quite as distinct, this correlation held with students on financial aid (Figure 5): 

We also looked into possible correlations between achievement and borrowing library materials, or circulation, a well-established indicator of library use. In recent years and as the provision of electronic resources has increased, physical borrowing has decreased substantially, as demonstrated by Figure 6 below, which represents all circulation activity from 2012 – 2016:
Looking at the circulation data for undergraduate students, our sample (Figure 7) for this investigation, we found that their borrowing decreased very slightly between 2014 and 2015 and it is obvious that circulation remains an important library activity among undergraduate students. There is a much more marked decrease in loans in 2016 which could have been a result of library closures during the student protests – although this remains speculation.

In spite of decreases in lending illustrated above, correlations between library loans and GPA remain evident. Although they are less clear than the correlations between entry into the library and GPA, a positive correlation is nevertheless discernible for all undergraduate students (Figure 8):
GPA also improved with library loans for students on financial aid. Once more this trend was less clear, but still evident with students on financial aid (Figure 9):

Discussion

We have therefore been able, not only to demonstrate to the Strategic Intelligence Committee that the time and effort invested in including library data into the Data Warehouse has been a worthwhile expenditure, but also to provide objective evidence to the university at large that the library is an essential and a valuable partner in the academic enterprise.
Our determined lobbying for library data to be incorporated in the Data Warehouse has been vindicated through our preliminary interrogation of library behaviour both by students on financial aid, and of the general population of the undergraduate cohort. The Data Warehouse has allowed us to draw meaningful conclusions that show a positive relationship between library use and student performance. The data strongly suggests that students on financial aid, who frequently come from impoverished schools and surroundings without libraries, but who have acquired library habits, benefit from them. This is important for the drive towards redress and increased efforts to ensure that previously disadvantaged students can participate fully in the academic space without feeling alienated. Our results show that the library behaviour of students on financial aid, once established, does not differ in marked ways from those of the general cohort, and that their patterns of achievement are comparable.

Reports drawn from the Data Warehouse do not allow us, nor did we expect it, to disaggregate the effect of the library on student learning or to assess what value the individual student attaches to his/her use of the library. For this we plan a series of focus-group discussions with undergraduate students using the facilities of the Knowledge Commons, and postgraduate students using the Research Commons. This will constitute the next phase in our research to provide the narrative reports that are so important in interpreting the figures.

Acknowledgements

P.J. Fisher from ICTS assisted us in ensuring the integrity and completeness of data and to generate reports.

This work is based on the research supported by the National Research Foundation of South Africa (Grant Number 92749). The Grantholder acknowledges that opinions, findings and conclusions or recommendations expressed in any publication presented by the NRF supported research is that of the authors, and that the NRF accepts no liability whatsoever in this regard.

References


Understanding Students’ Satisfaction with Open Educational Resources as Course Materials

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Introduction

In order to ameliorate rising textbook costs, in 2015 The Ohio State University launched the Affordable Learning Exchange (ALX) program, to offer grants that support faculty in replacing their traditional textbooks with high-quality digital open educational resources (OER) or library materials. Under the first cohort, faculty adopted affordable materials for 12 courses in Fall 2016, and a second cohort is working on a similar number this year. The projects in the first two cohorts are projected to save students nearly $1.3 million annually.

Although each of the faculty who participated in the Fall 2016 cohort shared the common goal of adopting open or affordable course materials, they were not a monolithic group. They represented a range of disciplines, including art education, molecular genetics, psychology, geography, mathematics, and other subject areas. In addition, the ways in which they implemented affordable materials ranged from replacing their traditional textbook with an existing open textbook, to curating a collection of open or library materials, to writing their own textbook or software application.

As we designed our evaluation and assessment framework for ALX, we reviewed existing surveys that capture student perceptions of OER quality and usability. Most existing OER survey items are either tailored to the features of a specific OER being evaluated (e.g., Annand, 2008), or rely on fairly broad and holistic satisfaction items (e.g., Bliss et al., 2013; Lindshield & Adhikari, 2013). Given that we needed a set of items which would apply consistently and appropriately to the wide variety of affordable materials within the ALX program, the tailored approach was not a good fit. However, the broad and holistic approach would not allow us to capture specific areas for improvement. Open-ended student responses in previous studies (Bliss et al., 2013; Hilton, Wiley, & Bliss, 2012) suggest that some students are dissatisfied with OER in terms of both issues related to general textbook quality (e.g., visual quality, readability) and issues specific to digital materials (e.g., ability to annotate, ability to access the materials when needed). In addition, studies of academic digital content (not necessarily of OERs) also suggest that some students experience physical discomfort while using digital media (such as eye or neck strain), have difficulty shutting out distractions while using a digital device, have difficulty navigating or tracking their progress, or generally have difficulty reading and retaining digital material (Annand, 2008; Eden & Eshet-Alkalai, 2013; Noyes & Garland, 2008; Stoop et al., 2013a & 2013b). We wanted to assess the extent to which those “digital dissatisfiers” were relevant to our student population, in order to prioritize areas of program development, including potential training or support for both ALX instructors and students.

In addition to program improvement, a second purpose of our own survey was to inform a larger quantitative analysis of student outcomes. For that analysis, we plan to use aggregated course-level student and faculty perceptions of the quality of course materials as a moderator variable between adoption of affordable materials and improved student outcomes; however, we were concerned that if faculty did not fully integrate the materials into the course, then the materials’ quality would be irrelevant to student outcomes (see Gurung & Martin, 2011). We also suspected we would find a stronger relationship between the materials’ quality and students’ overall satisfaction with digital course materials if the instructor required students to review the materials.

Accordingly, we designed our survey to measure three components of students’ perceptions of course materials: Quality (characteristics of the materials), Integration (whether students needed to review the materials), and Experience (the impact of the materials on the student’s experience of the course). To capture issues related to general textbook quality, we adapted and blended items from a well-validated survey of textbook quality (Gurung & Martin, 2011) with items from previous OER surveys (e.g., Bliss et al., 2013). Integration items were adapted from Gurung & Martin (2011), and we drafted most of the Experience items based on “digital dissatisfiers” reported in the literature. In this paper, we introduce the survey instrument and discuss its reliability and predictive validity.

Methods

The Quality, Integration, and Experience items were measured using 21 Likert scale items (Table 1). In addition, a final overall Satisfaction item (similar to one used in previous studies, e.g., Bliss et al., 2013) asked students to imagine a future course and to indicate whether they would prefer to enrol in a section that used a traditional printed text, or that used digital materials similar to the one in their current course.
We distributed an end-of-semester online survey to \( N = 2,368 \) students enrolled in OER sections of twelve courses that adopted ALX OER in Fall 2016. Ten of the courses were the focus of the initial ALX grant program, and two had adopted some of the same course materials but were not explicitly part of the grant. \( N = 681 \) students consented to participate, and \( N = 611 \) responded to most items.

As part of our larger evaluation and improvement framework, we also conducted in-depth interviews with 12 instructors across the 10 original focus courses\(^1\); within the interview context, instructors provided their own ratings for Quality and Integration items. For the Quality subscale, we did not ask instructors the final two questions (regarding comfort and value), as these items were more relevant to students than faculty; and while we asked students to anchor their judgment of materials in comparison to other courses they had taken, we asked instructors to anchor their judgment in comparison to the previous version of the same course. Integration subscale items were parallel between students and instructors, with some minor necessary recasting (e.g., “this instructor” became “you”). The instructor within-interview survey also included additional items on implementation, which we will not discuss here.

To provide an overall sense of students’ assessments of their course’s materials, for each of the survey scale items we calculated results for the “typical course,” by first calculating the twelve within-course means and standard deviations, and then aggregating across the course-level means and standard deviations. We also calculated the proportion of students who responded to each item with a rating of 1 or 2 and the proportion who responded with a rating of 4 or 5. In order to establish the reliability and validity of the survey items, we conducted several analyses. First, using exploratory factor analysis on the student sample, we investigated whether the 21 Likert items indeed load onto the theorized set of subscales, and explored the internal reliability of each subscale. Second, we explored inter-rater reliability across students by calculating an intraclass correlation using a mixed-modeling approach. Third, for the Quality and Integration subscales, we correlated student and instructor responses using both a simple Pearson correlation and a mixed-modeling approach. Fourth, we assessed whether the subscales predicted the final overall Satisfaction item, and investigated whether the instructor integration of materials (based on the student’s report) moderated the predictive relationship.

**Results**

Table 1 shows that, overall, students’ responses were very positive. For Quality and Experience items, mean ratings typically ranged from 3.5 – 4.0, suggesting that students thought the course’s materials were somewhat better than those of courses they had taken; and indeed, students were much more likely to rate each item with a 4 or 5 (Somewhat or Much Better / Easier) than with a 1 or 2 (Much or Somewhat Worse / Harder). For example, 63% felt their course’s digital materials were more relevant than a typical printed textbook (while only 5% felt they were less relevant), and 66% felt the digital materials were easier to access (while only 8% felt access was more difficult). However, we have flagged a few areas for general improvement (e.g., 18% felt the quality of study aids was worse; 26% had more difficulty shutting out distractions while studying, and 17% had more difficulty taking useful notes on the material), as well as areas for improvement within specific courses. In terms of Integration items, about half of students felt they needed to review the OER materials Almost Every Time or Every Time, but some students disagreed; for example, 14% felt they Never or Almost Never needed to review the materials in order to understand in-class content. In terms of the overall Satisfaction item, 66% of respondents said that in future courses, they would prefer to use digital materials like those in this course, while 12% would prefer traditional printed texts and 21% had no preference.

**Table 1. Student survey scale items’ typical course means and standard deviations, and proportion of students using ratings 1-2 and 4-5.**

<table>
<thead>
<tr>
<th>Quality</th>
<th>Mean (SD)</th>
<th>% 1-2 Ratings</th>
<th>% 4-5 Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good search capabilities</td>
<td>3.86 (1.01)</td>
<td>9%</td>
<td>61%</td>
</tr>
<tr>
<td>High-quality visuals</td>
<td>3.86 (1.22)</td>
<td>6%</td>
<td>62%</td>
</tr>
<tr>
<td>Engaging and interesting writing</td>
<td>3.84 (0.92)</td>
<td>8%</td>
<td>56%</td>
</tr>
<tr>
<td>Understandable and clear writing</td>
<td>3.88 (0.89)</td>
<td>8%</td>
<td>57%</td>
</tr>
<tr>
<td>Helpful and useful study aids</td>
<td>3.58 (1.03)</td>
<td>18%</td>
<td>50%</td>
</tr>
<tr>
<td>Relevant content</td>
<td>4.06 (0.87)</td>
<td>5%</td>
<td>63%</td>
</tr>
<tr>
<td>Current content</td>
<td>4.10 (0.82)</td>
<td>3%</td>
<td>66%</td>
</tr>
</tbody>
</table>

\(^1\) 12th International Conference on Performance Measurement in Libraries
The 21 student survey scale items were included in an exploratory factor analysis with principle-axis factor extraction and varimax rotation. There were three factors with eigenvalues above 1; prior to rotation, the first factor explained 49% of the variance across all items, with the second and third factors contributing another 10% and 6% respectively, while after rotation, the first factor explained 23% of the common variance, with the second and third contributing another 23% and 10% respectively. Examination of factor loadings indicated that with a three-factor solution, each item’s factor loadings lined up cleanly with the three subscales, with Quality items loading on Factor 2 (with loadings ranging from 0.50 to 0.74), Integration items loading on Factor 3 (ranging from 0.57 to 0.82), and Experience items loading on Factor 1 (ranging from 0.53 to 0.71). For each subscale, Cronbach’s alphas indicated a strong level of inter-item reliability (student Quality = 0.91, Integration = 0.79, Experience = 0.93). To assist practitioners who may be interested in administering a shorter scale tapping students’ overall perception of quality and experience, we also examined the results of a one-factor solution (explaining 49% of total variance). The strongest-loading items (all above 0.75) were those related to engaging and interesting writing, understandable and clear writing, relevant content, ease of reading and understanding, ease of reviewing and remembering material, and ease of preparing for class. When considering only these six items as a “Short Scale,” Cronbach’s alpha was very strong at 0.91.

Next, we assessed the extent of agreement between students in the same course by calculating an intraclass correlation for each subscale as well the Short Scale, using SAS PROC MIXED (see Singer, 1998). The Quality, Experience, and Short Scale items were most relevant to the course level, and thus we used course membership (N = 12) as the random effect for these scales; however, the Integration items may be more relevant to the particular instructor teaching the course; accordingly, we used Course By Instructor membership (N = 20) as the random effect for Integration. For each scale, the random variance component was significant at p < 0.05, indicating that courses did substantially vary from one another in terms of students’ ratings. For example, course materials which were newly-created by one instructor (hereafter referred to by the pseudonym Dr. Tailor) to meet the unique needs of that course’s students received Quality ratings more than half a point higher than the average course (EBLUP estimate =
0.64, SE pred = 0.15, p < 0.001), while course materials which another instructor (hereafter referred to as Dr. Adopt) pulled from an existing open text with little modification received Quality ratings about a third of a point lower than the average course (EBLUP estimate = -0.39, SE pred = 0.15, p < 0.001). While the courses differed significantly in terms of students’ ratings, the intraclass correlations (a measure of whether students had more similar ratings to classmates within their course, compared to students in other courses) were quite mild (Quality = 0.17, Integration = 0.22, Experience = 0.15, Short Scale = 0.19).

In terms of the faculty survey responses, instructors typically rated each Quality and Integration item between a 3 and 4. Faculty ratings were noticeably different from those of students for only one item: Faculty rated “relevance of content” substantially higher than students, with a mean of 4.67. While we had too few faculty respondents to conduct a parallel factor analysis, Cronbach’s alpha on the two faculty subscales indicated an acceptable level of inter-item reliability for each (faculty Quality = 0.80, Integration = 0.70).

We next correlated each student’s Quality and Integration subscale with their relevant instructor’s subscale. To do so, we first recalculated each student’s Quality subscale score to exclude the final two items, making the subscale parallel to the faculty version; we also dropped students whose instructors were not included in the survey. We did not expect a strong student-faculty correlation for the Quality subscale, given that students and instructors were anchoring their judgments of quality in slightly different contexts; but we expected a relatively strong correlation for Integration. Using simple Pearson correlations with \(N = 480\) students, the student-faculty correlation for Quality was only \(r = 0.17\), while the correlation for Integration was even lower at \(r = 0.09\). While both correlations were statistically significant, the statistical test is biased due to a violation of the assumption that all observations are independent from each other. Although the student intraclass correlations reported above are not large and thus may not substantially affect standard errors, the faculty responses are entirely duplicated across students in their courses. To correct for this, we re-ran the PROC MIXED models for Quality (excluding students’ two final items) and Integration with the subset of students whose instructors were included in the survey, using instructor as a random effect. The student intraclass correlations remained similarly low (Quality = 0.20, Integration = 0.16). For each model, we added the instructor’s relevant subscale as a fixed effect at the second level of the model, and neither subscale was a significant predictor (for the Quality model, the instructor subscale estimate = 0.16, SE = 0.17, n.s.; for the Integration model, the instructor subscale estimate = 0.11, SE = 0.15, n.s.).

To better understand the lack of relationship between student and instructor responses, Figure 1 plots the aggregated course-level student Quality subscale against each instructor’s subscale response. The figure suggests the correlation is attenuated due to a restriction of range (see Goodwin & Leech, 2006): on average, students within all courses rated their course materials quite highly, as did every instructor but one. Note that the farthest upper-right observation belongs to Dr. Tailor’s course, while the outlier in the lower-right quadrant belongs to Dr. Adopt’s course. Similarly, the Integration subscale showed a tight cluster in the upper-right quadrant with the exception of two instructors inhabiting the lower-right quadrant (i.e., they believed they had not strongly integrated the materials into the course, while their students felt that they did).

![Figure 1. Scatterplot of aggregated course-level student ratings of Quality and the relevant instructor’s Quality rating](image-url)

We next investigated which subscales were most predictive of the final overall Satisfaction item, and investigated whether Integration (based on students’ reports) moderated the relationship between Quality and Satisfaction. Table 2 shows the Quality, Integration, and Experience means across the three levels of the overall Satisfaction item (\(N = 611\)). We also include the short Quality/Experience scale in Table 2 for interested practitioners.
Table 2. Student subscale and Short Scale means and standard errors across levels of the overall Satisfaction item.

<table>
<thead>
<tr>
<th>In a future course, student would prefer….</th>
<th>Quality Mean (SE)</th>
<th>Integration Mean (SE)</th>
<th>Experience Mean (SE)</th>
<th>Short Scale Mean (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional printed texts</td>
<td>3.01 (0.09)</td>
<td>3.15 (0.11)</td>
<td>2.83 (0.09)</td>
<td>2.81 (0.10)</td>
</tr>
<tr>
<td>No preference</td>
<td>3.46 (0.05)</td>
<td>3.37 (0.08)</td>
<td>3.22 (0.05)</td>
<td>3.31 (0.05)</td>
</tr>
<tr>
<td>Digital materials like those in this course</td>
<td>4.08 (0.03)</td>
<td>3.72 (0.04)</td>
<td>3.81 (0.04)</td>
<td>3.96 (0.03)</td>
</tr>
<tr>
<td>Total</td>
<td>3.81 (0.03)</td>
<td>3.57 (0.04)</td>
<td>3.56 (0.03)</td>
<td>3.68 (0.03)</td>
</tr>
</tbody>
</table>

Students who would opt for a traditional text in the future rated their current OER as being quite similar in Quality and Experience compared to other courses they had taken, while students who had no preference rated the OER materials higher, and students who would opt for digital course materials rated the OER materials higher still. Students’ judgment of whether they needed to review the materials followed a similar stepwise increase across levels.

As we were primarily interested in why some students would prefer to use a traditional text, we recoded the overall Satisfaction item as binary (1 = prefer traditional text, 0 = no preference / prefer digital materials) and conducted a logistic regression including mean-centered versions of the student Quality, Integration, and Experience subscales, the interactions between Integration and the other two subscales, and fixed effects for course membership (which removes course-specific effects from the estimation of other parameters and helps adjust standard errors for intraclass clustering). The two interactions did not approach significance and were dropped from the model. Quality was a statistically significant predictor (logit = -1.53, SE = 0.34, odds ratio = 0.22, \( p < 0.001 \)), Integration was not significant (logit = -0.66, SE = 0.18, odds ratio = 0.94, n.s.), and Experience was marginally significant (logit = -0.66, SE = 0.34, odds ratio = 0.52, \( p = .05 \)). Figure 2 plots the relationship between Quality and the model-predicted probability that each student would opt for a traditional textbook. Among students who rated their digital course materials’ Quality as a 3.5 or above, the average probability of opting for a traditional text in the future was only 0.05; among those who rated Quality between a 3 and 3.5, the average probability was 0.12, and among those who rated Quality below 3, the average probability was 0.58.

The model also suggested that, after controlling for the three subscales, the twelve courses significantly differed in their likelihood of students opting for a traditional text in a similar course in the future. Entering the course fixed effects as a block, the omnibus test of coefficients was statistically significant (chi-square = 21.23, df = 11, \( p < 0.03 \)). For example, in Dr. Tailor’s course, the average model-predicted probability that students would opt for a traditional text in the future was 0.00; in Dr. Adopt’s course, the average probability was 0.13; and in a highly-technical course in which many students traditionally struggle, the average probability was 0.29.

For interested practitioners, we also conducted a model using the Short Scale to predict students’ preference for a traditional textbook, controlling for course fixed effects, and found that it was a strong predictor (logit = -1.79, SE = 0.25, odds ratio = 0.17, \( p < 0.001 \)).

Conclusion
Similar to most previous studies of OER, we found that both students and faculty were generally pleased with the quality and experience of using affordable digital materials (for a review, see Hilton, 2016). We also found that our three survey subscales (and a Short Scale version of Quality/Experience) had strong inter-item reliability, and that the Quality and Experience subscales (and their short version) had predictive validity in terms of whether students would choose a traditional or digital text in future courses.

However, we also encountered some unexpected results. First, student ratings were not strongly clustered within courses, which might suggest a lack of inter-rater reliability. In part, this is due to most students being uniformly pleased with their course’s OER, and believing they were required to read it (regardless of which course they were in). On the other hand, student responses differed between courses to enough of an extent that we could statistically distinguish between the highest- and lowest-rated courses (e.g., Dr. Tailor versus Dr. Adopt), in ways that seemed consistent with our qualitative understanding of how those course materials were developed and delivered. Remaining student-specific variability may be due to the idiosyncratic array of other courses each student is using as a standard of comparison, the extent to which each student is sensitive to “digital dissatisfiers,” and the extent to which each student generally believes he or she does not need to review course materials in order to succeed at a personally-acceptable level. Second, student ratings of Quality and Integration were not well-correlated with the relevant instructor’s own ratings. For the Quality subscale, this may be due to the different anchors used by the two types of respondents (i.e., students comparing against the quality of other courses, versus faculty comparing against the quality of the prior version of their own course). But in general, the lack of correlation seems due to a restriction of range – and to the fact that one instructor was substantially more critical of her OER textbook than her students were, and two instructors believed they had not strongly integrated the materials into the course, while their students felt that they had. Third, we expected the Integration scale to moderate the relationship between Quality/Experience and students’ overall interest in using a digital text in the future. However, even among students who Never or Almost Never needed to use the course materials, Quality and Experience were still positively related to their overall interest in digital OER.

In terms of program assessment and improvement, our current survey has not only been useful to confirm that (in general) students feel ALX’s affordable course materials are of equal or better quality than traditional print materials, but also has helped us to diagnose specific areas for improvement. For example, we are considering how to improve the quality of study aids in future ALX courses, investigating opportunities to better integrate digital annotation capabilities and train students in their use, and conceptualizing a guide that will help students block out distractions on digital devices.

In this paper, we have presented two versions of the survey (one with three subscales, and a short six-item version that focuses on Quality and Experience). Both have strong inter-item reliability and predictive validity in terms of student interest in future digital materials. Programs interested in a general assessment of OER quality, or which serve populations who are unlikely to be sensitive to “digital dissatisfiers,” may find the short scale most helpful. Programs interested in identifying areas for improvement, or who serve populations that may be concerned with digital access and success issues, may find the full set of three subscales most helpful.

References


Endnotes

[1] Two of the ten focus courses had implemented ALX-funded course materials across multiple sections. For these courses, we interviewed/surveyed two different instructors: A lead instructor who developed the materials, and another instructor who adopted the materials in their own course section. Students in additional adopting sections of the course were surveyed (for a total of $N = 20$ combinations of courses and instructors), but their instructors were not interviewed/surveyed. For the two non-focus courses, instructors were not interviewed/surveyed. For analyses that use both student and faculty survey responses, faculty $N = 12$ and student $N = 480$. 

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University of Massachusetts Amherst Libraries Portfolio Project
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Suenita Berube

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Abstract
The Portfolio Project is a longitudinal case study that analyzes multiple interactions between the Libraries and undergraduates from the class of 2020 at the University of Massachusetts Amherst. Using a portfolio model, this project combines qualitative and quantitative data to produce a more nuanced and complex understanding of library impact by focusing on the breadth and depth of library contributions to the student experience. It spans interactions related to services, collections, resources, and facilities. This study seeks to understand and articulate library contributions to student learning and success. This paper reports on the first year of the project.

Purpose
The portfolio approach was identified as a mechanism to focus analysis where there is an abundance of disparate data about students and their usage of library services, resources, and facilities. It enables both focused attention and broad integrated understanding of library contributions to student experiences. Student data provided by the registrar is combined with library data including collections, equipment, instruction, and other sources.

The University of Massachusetts Amherst is the flagship campus of the Commonwealth of Massachusetts. In 2016, 23,373 undergraduate students and 6,664 graduate students were enrolled – 5005 first-year undergraduate students expected to graduate in 2020 were identified as the study population. (See Table 1 for demographic detail.)

The Portfolio Approach
ePortfolios are increasingly prevalent in higher education, and are now used on more than half of U.S. college campuses (Dahlstrom cited in Eynon and Gambino, 2017). Portfolios are used in educational settings for a variety of purposes. Showcase portfolios display the best of one’s work. Progress portfolios are typically used for assessment, and contain multiple examples of the same type of work over time. Working portfolios may include drafts and works in progress, which can be used as points of reflection (Herman et al., 2003). These tend to be more formative in nature.

This study uses the working portfolio approach, collecting data from multiple points of contact between the Libraries and the undergraduate students they serve. This approach allows for an emphasis on process – one of documentation, reflection, learning and action – rather than on a final report to be presented at the end of the multi-year study.

The Portfolio Project began to take shape with the formation of a working group of library professionals, including staff from Assessment, the Science and Engineering Library, and Undergraduate Teaching and Learning Services. Initial work consisted of identifying potential data sources and collaborating with the Information Technology department to create a data management plan, put appropriate security measures in place, and make connections between datasets. A part-time assessment staff member was hired to support the Portfolio Project. Three key themes emerged as the work began: bundling/unbundling/rebundling, reflective thinking practices, and social pedagogy.

Bundling/Unbundling/Rebundling
Randy Bass of Georgetown University articulates the concept of two competing paradigms in education: the disintegrative (unbundled) and the integrative (bundled). With greater opportunities to personalize one’s learning and narrowly drill down into
data, the components of one’s higher education experience have the potential to become “unbundled.” Bass suggests that ePortfolios provide an opportunity to “rebundle” these disparate components, to allow for a more cohesive learning experience (Bass, 2017). Similarly, whereas analysis of library impact could be based on disparate data sources, with silos of discrete analyses, the portfolio model provides an opportunity for information to be integrated and “bundled” in a more holistic manner. In this way the Libraries look to understand the relationships between multiple points of contact with students and contributions to the student experience over time. The “rebundled” student experience goes beyond number of instruction sessions received or items checked out. For example, the project provides a framework for understanding how outreach during New Student Orientation and programming relates to uses of library spaces and potentially the level of engagement between students and library staff over time.

**Reflective Thinking Practices**

Deep and complex understanding is pursued through reflection. “Reflection then is the vehicle for critical analysis, problem-solving, synthesis of opposing ideas, evaluation, identifying patterns and creating meaning – in short, many of the higher order thinking skills we strive to foster in our students.” (Eynon et al., 2014).

The writings of John Dewey on the criteria for true reflective thinking have been influential in developing guiding questions to facilitate reflective thinking throughout the study. For instance, Dewey wrote that reflection allows the learner to make meaning by moving from one experience into the next, continually making connections between those experiences (Rodgers, 2002). In this vein, the Outreach Librarian made connections across the continuum of outreach activities – relating the first week of school Welcome Desk with library game night programming, tours, and New Student Orientation. Additionally, the Portfolio Project design has been adapted as the result of staff reflection as discussed in conclusions.

The work of Peter Pappas also influenced the development of the study’s reflective thinking practices. Pappas writes about a Taxonomy of Reflection, in which learners go through several stages of critical thinking, asking themselves questions like: What did I do? What was important about it? Where could I use this again? Do I see any patterns in what I did? How well did I do? What should I do next? (Pappas, 2010) (See Figure 1.)

![A Taxonomy of Reflection](image)

*Figure 1*

This taxonomy was used to guide librarian reflection. Further, “reflection is not a tidy exercise that closes an experience; reflection is ongoing, often messy, and provides more openings than closings” (Pigza quoted in Connors, 2008).
### Social Pedagogy

The study is also informed by social pedagogy practice, which at its core “engages students in communication-intensive tasks where the representation of knowledge for an authentic audience is central to the construction of knowledge. Social pedagogy transforms ePortfolio learning from a solitary experience to one in which students engage with a community of learners.”

This is adapted to the perspective of librarians engaged with each other on behalf of the Libraries.

The portfolio serves as a communication tool for the Libraries, making information available to staff and providing opportunities for peer feedback. For example, initial findings on library instruction were shared at a monthly meeting of library liaisons, including those who provide library instruction to undergraduates, and staff who coordinate and oversee this instruction. The sharing of data led to an animated discussion in which librarians began to reflect on the implications of the data and to ask specific questions about further paths of inquiry. After the meeting, further analysis took place and was shared with the larger group. It also led to a discussion about library instruction opportunities for incoming first-year students through an elective summer course. This is an example of social pedagogy and reflection in which the librarians at the meeting were engaged in a communication-intensive experience as part of an authentic audience and engaged as a community of learners. The face-to-face group discussion was continued by group email distribution list and in individual small group discussions with intentional reflection where action items were identified for follow-up.

### Initial findings

Preliminary analysis of instruction data revealed that 71% of students in the class of 2020 received library instruction through at least one course. Across demographic groups, the results were evenly distributed, with no particular group receiving instruction at a rate that differed significantly from the whole. The process of reflection led the Undergraduate Education Librarian to propose future paths of inquiry, such as participation in instruction sessions over time by subgroups like international students, transfers, and Honors College students.

Analysis revealed that all students in one subgroup – those enrolled in the Nursing College – received at least one session of library instruction. Data on this subgroup, as well as that of the full study population, was shared with the Science and Engineering Librarian who provides library instruction for the required nursing courses. She was presented with guiding questions to facilitate reflection as she reviewed the data. One question that emerged for her was whether or not there was significant overlap in material between instruction sessions led by her and those offered through the general education English courses taken by most first-year students. This led to the sharing of instruction curriculum among librarians, and greater coordination of efforts.

This librarian also reflected on future data analysis: Could the data be broken down to the departmental level in addition to the school and college level? This would enable her to work with other departments to give students basic exposure to the databases and information resources in their discipline early on, and then build and expand on that as they progress through their academic work.

She also expressed interest in continuing to track the library instruction sessions that students attend each year as they progress through their programs. This would help her to work on curriculum mapping of core skills with course content.
<table>
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<th>% of class</th>
<th>Item</th>
<th>Demographic</th>
<th>Number of students receiving library instruction</th>
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<th>% of the class that received library instruction</th>
<th>Number of students with circulation transactions</th>
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<td>BDIC</td>
<td>College of Major</td>
<td>0</td>
<td>0%</td>
<td>1</td>
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</tr>
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<td>Education</td>
<td>College of Major</td>
<td>53</td>
<td>1%</td>
<td>73%</td>
<td>15</td>
<td>1%</td>
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<td>7%</td>
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<tr>
<td>15</td>
<td>0%</td>
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<td>Military Status</td>
<td>10</td>
<td>0%</td>
<td>67%</td>
<td>3</td>
<td>0%</td>
<td>20%</td>
</tr>
<tr>
<td>30</td>
<td>1%</td>
<td>Veteran Dependant</td>
<td>Military Status</td>
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<td>1%</td>
<td>70%</td>
<td>12</td>
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<tr>
<td>559</td>
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<td>Not Indicated</td>
<td>Military Status</td>
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<td>1%</td>
<td>19%</td>
<td>33</td>
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<td>71%</td>
<td>1192</td>
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The Undergraduate Outreach Librarian was similarly provided with guiding questions to facilitate reflection on outreach initiatives. A number of programs and events are offered to first-year students with the goal of bringing them into the Libraries and providing them with positive experiences that will encourage them to seek out library resources throughout their time at UMass. Approximately 50% of all incoming freshmen participate in New Student Orientation sessions, in which students are provided with an overview of library services. Upon reflecting on the sessions, this librarian would like to make the sessions more interactive, perhaps by offering prizes to students who ask questions. Also noted was that although students often express interest in library tours, registrations are minimal. Plans to experiment with online registration on the library website and to partner with the Information Technology department to implement this idea were identified. New Student Orientation sessions for the class of 2021 began in June 2017 and these sessions were structured with adjustments based on portfolio reflections.

Preliminary analysis of library circulation data revealed that 29% of first-year students borrowed materials from the Libraries. There were no significant discrepancies in borrowing between different demographic groups. The majority of first-year students who borrowed materials did so for the first time in September, prompting questions about why this may have occurred. Library instruction course requirements may have contributed to this trend and will be explored. Further analysis will include a closer look at the types of materials students borrowed (books, laptops, digital media lab equipment, reserves, etc.).

Preliminary analysis provided a foundation for understanding users and nonusers of library resources. Data was used to confirm or challenge assumptions about the class of 2020 and library interactions with this group of students. Rather than expecting revelations in the data, it was the process of engaging with the data that provided meaningful opportunities to ask questions, shape further paths of inquiry, and allow for data-informed decision-making.

Research or practical limitations or implications

Challenges arose at the outset of the study in connecting disparate data sources. A common key was necessary to link the data, prompting a revision to our library instruction data form, which would then allow for a connection between student data and library instruction data. Database development and support is key to both security and the ability to perform integrated analysis.

The iterative process of assessment, communication, and reflection is time-consuming and requires intentional focus.

It is also important to note that where this study reflects on the success of students it does not attempt to measure “Student Success” as popularly discussed in higher education in terms of retention, time to graduation, or grade point average. These measures will likely be examined as part of the comprehensive nature of the project. However, it is the intention of this project to describe library contributions to students through more integrative means.

Conclusions

Reflection has been integral to the course of this study, leading to the conclusion that the Class of 2020 will serve as a pilot study year. Initial findings and the resolution of data challenges from the 2020 data will inform the process moving forward. The Portfolio Project has begun to follow the Class of 2021 and will continue to use the class of 2020 as a forerunner to help identify trends, questions, or challenges that will shape the data gathering for the class of 2021.

Future data sources may include proxy data, reservations for group study spaces, e-reserves, and interlibrary loan activity. The use of portable chip readers is also being explored. These can be used to gather data on student attendance at outreach events, library tours, and instruction sessions. Gathering data from wifi router logs is also a possibility, as users who enter the building with a wifi device can be counted in an effort to quantify usage of particular library spaces among the study population (learning commons, quiet study, etc.).

Qualitative data will also be included in our portfolio. Artifacts may be collected, such as assignments from library instruction sessions. Focus groups, student interviews, and opportunities for students to reflect on their interactions with the Libraries may provide information that will deepen understanding of the student experience.
The Portfolio Project as a process – with deliberate evaluation, communication, and reflection – is key to the learning and the changes that benefit students and the Libraries as a result. This initial year has shaped what will be an ongoing process beginning again with the class of 2021.

Notes

References


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Using a longitudinal focus group methodology to measure the value and impact of public libraries

Leo Appleton, Professor Hazel Hall, Professor Alistair Duff, Professor Robert Raeside

Edinburgh Napier University

Introduction

The purpose of this paper is to report back on a PhD research project currently being undertaken at Edinburgh Napier University, which is currently investigating the impact and value of the public library service on citizenship development in the UK. The paper will focus particularly on the specific longitudinal qualitative methods being applied in order to ‘measure’ this impact and value. A brief background to the project, along with a review of the literature around the theoretical frameworks informing the research are also provided in order to contextualize the research questions being addressed.

Background

There is a general acceptance that public libraries contribute to ‘community’, and have the potential to have a very positive impact on civil society. (Varheim, 2007). This ‘impact’ is ongoing, in that library users can realise the impact and value of libraries throughout their lives. Brophy suggests that “libraries are at the heart of social systems; they exist to serve the needs of people, to help them live, learn and develop and to act as part of the social glue which holds communities together” (Brophy, 2006, p. 3). Similarly, Totterdell (2005) very positively discusses the contemporary role of the library in society and suggests that the traditional public library in the UK is based on four keystones: culture, education, leisure and recreation, and information. However, even though libraries perform this multi-functional role, reaching out to citizens and spanning across different types of community provision, the value and impact of public libraries, in times of austerity, appears to be under increased scrutiny by the local authorities running them.

Traditionally the value of public libraries in the UK has been measured through quantitative methods in order to demonstrate return on investment or value for money to the authorities financing them. For example, Mcmeney (2009) discusses how measuring outputs alongside the measurement of economic impacts should provide evidence of the library’s value for money, and how contingent valuation can be used to assess a library’s economic value. An example of where this has been applied is one which demonstrates the return on investment in the British Library, when findings suggested that for every £1.00 spent on the service, a return of £4.00 was generated in terms of public good, knowledge transfer, intellectual capital, etc. (Pung, Clarke and Patten, 2004). Similarly there are examples of many academic libraries use metrics and learner analytics to demonstrate impact on outcomes such as retention and achievement by students in their respective institutions. The JISC Library Impact Data Project is an example of this (Stone, Patten and Ramsden, 2012) and so too is the LIRG/SCONUL Impact Initiative, which looked to assess the impact of higher education libraries on specific outcomes around learning, teaching and research in UK universities (Markless and Streatfield, 2006).

However, dealing with public libraries and the public that uses them, does not really allow for impact to be measured in this way as the associated outcomes of using public libraries are not necessarily defined by local authorities, not measured with regard to performance against these outcomes. There are some examples of value and impact studies in public libraries which use more qualitative methods, such as interviews and case studies (Linley and Usherwood, 1998), but they have relied on assuming that the respective libraries were operating with intended outcomes in mind and make reference to these as outcomes of education and social inclusion.

Literature review

The measurement of library performance to demonstrate value and impact, has become a significant sub-discipline of library services management. Understanding library users, their demands and expectations is essential for identifying success criteria and impact indicators (Hernon and Altman, 2010). Similarly, social impact is frequently associated with public
library services and the impact that they have on their communities and constituents (Kerslake and Kinnel, 1997). Whilst the research is grounded in the broad theme of public library performance measurement, it is also underpinned by some theoretical frameworks. A brief overview of these frameworks is provided below by way of a brief literature review:

Exchange theory

Information science has traditionally ‘borrowed’ theories originally developed in other areas to inform information science research (Hall, 2003). Exchange theory can be regarded as an appropriate theory on which to discuss the creation and exchange of knowledge and information. Exchange theory argues that commodities are bought and sold in transactions which are subject to contracts, conditions and obligations and that currency is exchanged during these transactions. Any human creation can be a ‘commodity’ and commodities have ‘value’. Value can be regarded as ‘use value’, which is the personal value that someone gains from consuming the commodity and ‘exchange value’, the value in monetary terms which might be given in order to obtain the commodity. (Best, 2003).

The production and exchange of information and knowledge and social capital as useful commodities has become established as one of the major functions of the public library. The benefit to individuals and communities through having access to these tangible outputs of public library use are the outcomes by which the impact and the value of the public library might be measured. Therefore it is important at this stage of the study to appreciate the possible theories which contribute to the concept of the public library service.

Exchange theory, even when applied to knowledge and social capital, is largely associated with commercial gain or competitive advantage and ultimately the transaction or exchange is financially (economically) driven. It is perhaps difficult to see the role of the library within these purely capitalist and macroeconomic models but ‘social exchange theory’ offers something potentially more appropriate and comprehensible with regard to the role of libraries in the creation and exchange of knowledge, information and social capital.

Hall (2003) also introduces the concept of ‘gift giving’ in non-capitalist societies. She explains that economic anthropologists have discussed systems of social exchange of physical artefacts as gift economies and that the rituals of gift giving provide insight into group values and behaviours such as the mutual regard and respect of parties involved in the exchange. Through this ‘borrowing’ of exchange theory it is possible to view the transactions which take place in the public library through an economic or socio-economic lens. This is important in respect of establishing what the intended outcome of public library use is and indeed the mechanisms (i.e. exchanges) through which the outcomes might be achieved. A basic understanding of this is required in order to consider how the impact and value of such outcomes might be measured.

The role of the public library in the Information Society

The Information Society is a concept which can be used to frame the idea that vast amounts of information are constantly generated and used and that in order to benefit from this, individuals and organisations need to maintain access and proactively engage with information. In this respect, libraries are used purposefully by people every day on several different levels as a means to access space, support, advice, technology and information: “supporting the self-education of the citizenry in order that they may become fully participating members in a democratic society.” (Alsted and Curry, 2003, p. 2).

One of the fundamental issues at the heart of information society or knowledge society studies is the sheer speed with which new knowledge and information is produced and the impact that this has on its dissemination, let alone critical consumption and ultimate impact and value of the knowledge and information. Bell (1973) and Duff (2000) talk about information flows and in doing so acknowledge the problem of information overload.

Information Society studies seeks to address the issues around information generation and dissemination through a number of theses, but at its centre is the impact of information. Feather’s work on the Information Society explains the use of information within a variety of economic and cultural environments and also discusses in detail how the commercial value of information becomes increasingly important in a world in which data can be transmitted across the globe in a matter of seconds (Feather, 2013). This in itself suggests a certain pressure on individuals, communities and organisations to be able to adequately seek, absorb, critique, discern, process and effectively use information and knowledge. The narrative about the
Information Society also suggests that information production certainly is not shrinking and differences between types of information is becoming less and less clear. This all leads to the potential for individuals to be overwhelmed by information which can result in potentially disengaging from making use of knowledge and information.

Synthesis and research questions

The Information Society literature points to the fact that information production, information flows, information overload all as a result of the modern information society. When this is considered alongside exchange theory one starts to see the role that the public library might play in such an environment. A lot of the literature reviewed also discusses the roles and responsibilities of the public library system particular with regard to citizenship and democracy.

Webster regards information as having a very powerful role within a democracy and talks about the concept of the ‘public sphere’, that is publicly available, reliable and adequate information which will facilitate sound discussion inform opinion and debate (Webster, 2006), and suggests that the public library network is the nearest thing that the UK has to a public sphere. It is this role of the public library, as the public sphere which makes sense of and makes accessible the information flows of the Information Society. This is not necessarily referenced or acknowledged on the literature which looks at the role and the outcomes measurement of public libraries. The value of the public library service and the impact that it has on the citizenry could be demonstrated through identifying social wellbeing and citizenship development outcomes and determining whether active usage of the public library services has afforded these. In considering this it is also possible to see how individuals and communities exchange knowledge, intellectual, transactional, human and social capital in their habitual use of the library service.

Therefore, there are two broad research questions which the project is seeking to address:

•To what extent is an individual’s position advantaged or disadvantaged as a result of using public libraries?

•What is the impact of using a public library service on individual and community citizenship?

Methodological considerations

Having established the focus for the research and the research questions the next stage was to consider a research strategy, which included potential methods for conducting the research. On a very basic level there are three simple options for empirical data gathering available in the social sciences: watching people; asking people; looking for evidence. In other words, ‘watching’ becomes ‘observation’, ‘asking’ becomes ‘interviewing’, ‘using questionnaires’, or ‘administering tasks’, whilst ‘looking for evidence’ includes ‘desk-based research’ or ‘document analysis’ (Robson and McCarten, 2016, p. 241).

The first decision taken was whether a quantitative or qualitative (or indeed mixed) approach should be taken. Usage figures for public libraries are available via CIPFA (Chartered Institute of Public Finance and Accountancy, 2017) and as such demonstrate how much is spent of individual public libraries and whole library authorities, how well they are used, and ultimately the value for money in costs per transaction, or spend per citizen. The CIPFA statistics are not a measure against library outcomes, therefore making use of these would not satisfy the research questions which effectively need to be answered in a more qualitative manner.

Qualitative methods

The nature of this study lends itself to a qualitative research method through which the impact and value of public library use could be measured within the theoretical frameworks underpinning the research. The method would need to be able to produce anecdotal and reflective data regarding how public libraries have an impact on the citizenry. Several methods were duly considered including interviewing public library users and a case study approach.

Interviews with library users would have been a suitable method, but within the scope and time limits of the research there was no guarantee that sufficient library users (i.e. those who could focus on citizenship development within the Information Society) could be guaranteed. There was also the issue of having access to different public library authorities and the logistics of arranging a critical mass of interviews across representative areas of the UK. This method was therefore discarded from a logistical point of view.
A case study approach was also considered, but it was felt that it might prove too difficult to find suitable case studies in which the research questions would be addressed. Whilst using case studies would have gone some way to enabling discussion around citizenship development it was felt that the aspect of talking to a critical mass of library users and discussing with them about how their library usage benefits them and has an impact on their development as active citizens would be the best way to generate the data required for this study.

**Focus group method**

A focus group method was chosen and agreed upon as the method with the most potential. In the first instance, one of the key elements of the methodology which need to be tested was the focus group interview itself. The key features of a focus group, as identified below, appear to be appropriate channels through which to elicit the data required for this research:

“Focus group interviews typically have five characteristics or features. These characteristics relate to the ingredients of a focus group: (1) people, who (2) possess certain characteristics, (3) provide qualitative data (4) in a focused discussion (5) to help understand the topic of interest.” (Krueger and Casey, 2009, p. 6).

Taking these characteristics into consideration, the research requires a method in which subjects (library users) are invited to discuss and share their experience of using public library services and to reflect upon how their library usage has affected them (understanding, knowledge, participation, lifestyle, citizenship, etc.) Having access to multiple participants and provoking discussion allows for the research questions to be addressed, but within an accessible and understandable conversation, allowing participants to talk freely and discuss their experience of library usage.

**Pilot focus group**

A pilot focus group was convened in September 2014 in order to test out the focus group method and to assess its appropriateness as a method for investigating the specific research questions. The Principle Investigator (PI) had access to Liverpool City Libraries, which was used in order to pilot the method.

The focus group was advertised using posters in and around the Liverpool City Library Services libraries, and was also included on the council Webpages and it was hoped that it would attract between 6 and 10 participants. Eight people eventually signed up for the focus group, which was an appropriate and workable number. They represented different users and demographics of the user population of Liverpool Central Library, including a gender balance and representation of different age groups, ethnicity and nationality.

The participants were asked to provide some personal details in advance of the discussion in order that demographics, representation and protected characteristics might be considered during the data evaluation stage.

<table>
<thead>
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<th>Age</th>
<th>Gender</th>
<th>Occupation</th>
<th>Nationality</th>
<th>Libraries used</th>
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</tr>
</thead>
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<tr>
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<td>F - Lecturer</td>
<td>Indian / British</td>
<td>Central</td>
<td>Books, Computers, Events</td>
</tr>
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<td>Participant 2</td>
<td>75 - 84</td>
<td>M - Retired professor</td>
<td>Indian</td>
<td>Central</td>
<td>Interest / Knowledge</td>
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<tr>
<td>Participant 4</td>
<td>16 - 24</td>
<td>M - College student</td>
<td>British</td>
<td>Central</td>
<td>Reading, Computers</td>
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</table>
Focus group theory suggests that a set of four therapeutic factors ordered within a focus group discussion represent stages of a discussion (Foulkes, 1964), and that time and consideration for each stage can optimise the usefulness and data outputs from such discussions. The first factor, social integration, is the opportunity for equal participation by the participants within the discussion. The second factor, mirror reaction, allows for participants to realise the shared values, anxieties and experiences that they have around the subject being discussed. The third factor, condenser phenomenon, is the collective conscious and unconscious of the group which enables participants to talk about the issues raised within the group discussion session, and the fourth factor, exchange, is the process of sharing information which forms the main part of a focus group discussion (Fern, 2001). This approach was applied during the pilot focus group, in order to test out methods of facilitating discussion within the broader methodology.

Ethics

Ethics is concerned with the attempt to formulate codes and principles of moral behaviour within the research process. Ethical enquiry needs to inform the reasons for action in the conduct of social research and should protect participants and the integrity of the inquiry (May, 2011). Taking this into consideration, the process of the focus group was explained to the participants, including the requirement for obtaining personal details which would be for analysis only and which would remain anonymous. An ‘informed consent form’ was distributed to the group, and this was explained and also read aloud to the participants. An anticipated longitudinal nature of the study was also explained in the hope that the focus group could be reconvened at a later stage of the research.

Focus group questions

The initial literature review findings were used to develop the questions which were then used in the pilot focus group. They were designed to provoke discussion which might inform the research. The questions were split into three general thematic areas, each of which was given an equal amount of time, with a fourth question intended as a ‘wrap up’ included briefly at the end of the interview:

1. Feelings and Attitudes

What are your feelings towards the public library (i.e. how do you feel when you are making use of the library?)

- What would you say your attitude was towards the public library?

2. Who are libraries for?

- Who do you think libraries are for and why?
What do you think libraries contribute to society?
What would happen if there were no libraries?
What do you think about the future of information?

3. Citizenship
- What do you think is meant by the term citizenship?
- How do you think your citizenship is affected by using the library?
- Have you been able to do anything different as a result of using the library?

4. What do you like about the library?

The discussions from the pilot focus group were very rich and provided much useful qualitative data, which in turn informed a values framework which could be used in subsequent focus group discussions required for the empirical element of the study.

The values framework consists of three main themes:
- Values around the epistemic function of libraries
- Values around access to libraries, information and support
- Values around integration and inclusion

Analysis of pilot focus group data

When analysing the transcript of the pilot focus group and individual comments and observations made therein it became clear that whilst the participants themselves presented a diverse mix of public library users. They were in agreement that their library service was indeed very valuable and there was a sense of pride in having access to their local and central libraries. The participants had a lot of praise for the physical space, the resources and the staff support in general as well as the concept of 'library' and the services and resources that they had access to. The discussions and observations from the focus group were very enlightening and in themselves allowed for a deeper understanding of potentially why people choose to use public library services, how they do so and how they benefit as individuals and community.

It is this benefit/advantage perspective which the research project aims to explore as it seeks to understand how libraries play a role and have an impact on the citizenry in the United Kingdom. Therefore, the data generated from the initial pilot group discussions validated the questions used and the values framework was agreed upon as a tool for subsequent focus group discussions.

Analysis of the focus group method

Strengths of the focus group method include: enabling proactive discussion in a safe environment; targeting questions so that the themes which emerged from the literature review can be addressed; capturing anecdotal evidence; validating anecdotal evidence through asking participants to reflect on the other participants’ observations. The pilot focus group did indeed provide a safe platform through which the participants could engage with the research and the questions posed and allowed all the participants to usefully contribute to the discussion.

Potential weaknesses of the focus group method identified included: Risk of the discussion being dominated by one or two individuals; the discussion becoming a platform for feeding back on specific library services; discussions taking different directions leading to insufficient time to cover all the questions.

All of these potential weaknesses could be mitigated though effective and measured facilitation of the focus group and an appropriate facilitation method was developed. It is important to ensure that all participants have an opportunity to contribute and that the discussion is not dominated by individuals. Similarly the facilitator needs to be aware of keeping the discussion focused, needing to steer the discussion back if it begins to take a different direction. It is also important that the facilitator...
uses accessible language, meaningful to the participants. For example most library users are unaware that they are participating in the exchange of social and transactional capital. Similarly, participants are not familiar with making conscious ‘citizenship’ decisions and the focus group questions and discussions need to be developed accordingly, taking this into account, but also ensuring that the research questions are addressed.

The pilot focus group had been well planned and executed and it was recommended that the same approach was taken for the future focus groups required for the research, making full use of the values framework that had now been developed. Some of the questions were amended to ensure clarity and understanding, which subsequently helped in keeping the discussion focused on the research questions.

**Empirical study – Phase one (2015)**

Approximately 30 public library authorities were then approached in order to obtain a representative selection of UK public library users, whilst at the same time trying to account for different types of library administration (i.e. county councils, city councils, urban and rural areas). From the responses received and the requirement to have a representative mix of library authorities, the following library services were then selected and used for the necessary sample:

- Liverpool (City council authority)
- Newcastle (City council authority)
- Edinburgh (City council authority)
- Lincolnshire (County council authority)
- Essex (County council authority)
- Devon (County council authority)
- Redbridge (Metropolitan borough council authority)
- Sutton (Metropolitan borough council authority)

During the Autumn and Winter of 2015, focus groups, with up to ten participants in each, were convened and carried out in each of the chosen localities as the first phase of the empirical study. Participants discussed and shared their experiences of using public library services and reflected upon how their library usage had affected them. A total of 53 participants were involved in the phase one focus group, which allowed for a critical mass of reflective and anecdotal data to be gathered in order to inform the research project.

**Phase two - Longitudinal method (2016)**

Focus groups can produce a number of different types of information and depending upon the research a large quantity of information might be desirable, for others, quantity might not be as important as the quality of the information (Fern, 2001). In the case of this research project both quantity and quality was required. The quantity had been addressed through the multiple focus groups approach, but it was felt another dimension was required in order to get the quality of information in order to fully inform the research question.

Interval contingent design is acknowledged as an intensive method in social science research methodology. Interval contingent recording involves participants recording experience at regular and pre-determined intervals of time (Bolger and Laurenceau, 2013). Studies also suggest that longitudinal studies are effective ways in observing and evidencing social development (Lewis and McNaughton Nicholls, 2013) therefore a longitudinal approach was an integral part of the research method which meant that each of the focus groups needed to be convened on multiple occasions. A longitudinal approach means that each group of participants would therefore be re-convened on multiple occasions at pre-determined periodic intervals. This enables participants to reflect back on their most recent library usage and to discuss its impact and value in a current and personal context. Reconvening focus groups in which the participants are familiar with each other, also allows for a deeper and more open discussion, which in turn enables deeper and richer data to be obtained.
A second round of focus groups (phase two) was completed during 2016 in each of the original locations, with as many of the original participants as possible. During the second round of focus groups, participants were asked to discuss and reflect specifically on their personal development and involvement in their communities during the previous 8-12 months (the period of time in between focus groups), and whether any of this had been facilitated through their library use. These themes were intended to generate more reflection and to focus in on both individual and community learning and development afforded through public library use. This has been the case and a mid-way analysis of the data suggests that a further round of focus groups are required in order to explore further some of the concepts which have come out of the first and second round focus groups.

Therefore, in order to further contribute to both the quantity and quality of information and data required for the research project a third and final round of focus groups is planned for Winter 2017, in which participants will be asked to focus on the generation and exchange of social and transactional capital and the role of the public library within the Information Society.

Analysis and findings of longitudinal data

The focus has been on the methodology applied to the project, and how this has been informed. Coding and analysis of the first two rounds of focus group is currently underway, but a full presentation of the findings will not be possible until the third and final round of focus groups has been completed. However, at this stage it is possible to report the main trends and themes identified through the research so far, and these include:

- A focus on the epistemic function of libraries as being primary to libraries achieving their social missions
- Print monographs being perceived of the main vehicle for the dissemination of knowledge and information
- Community ownership of public libraries
- Embedded digital citizenship within public library provision
- Inclusive and accessible libraries allowing for capital to be generated and exchanged

Conclusion

This paper has discussed the advantages of a longitudinal focus group methodology in public library performance measurement research. The methodology which has been applied is not widely used in Library and Information Science research but the empirical study is now far enough developed that the validity of the method can be discussed. The paper and discussion are therefore of value to anyone with an interest in the use of longitudinal focus groups, as a qualitative method for measuring and demonstrating library performance.

References


Using Dashboard and Automated Scripts to Improve End-to-End Processes

From Ordering to Cataloguing

NG Chee Yong and CHENG Eng Aun

National University of Singapore Libraries

Purpose

NUS Libraries comprises eight libraries. The acquisitions and cataloguing functions are centralized in the Technical Services Unit. The Ordering and Cataloguing Teams processes more than 10,000 orders and titles every year. Most of these titles are published in the United Kingdom and the United States. Many of these orders comprise recommendations from staff and students for teaching and research purposes. As such, these users generally expect the Library to make available their recommendations as soon as possible.

NUS Libraries take user needs seriously and align their high expectations with NUS Libraries strategic pillars of Staff, Service, Collection and Operational Excellence. The Library views the acquisition function on an end-to-end basis. While staff are grouped into functional teams for ease of management, the acquisition process is designed to minimize waiting time and other processing waste. This requires greater integration of functions traditionally performed in separate units, such as ordering and cataloguing. Staff may also be required to work on cross-functional basis. This arrangement is designed so that:

- Users benefit from quick fulfilment of requests and a rich collection in support of their teaching and research
- Library staff functions in a harmonious work environment and performs to their full potential, and
- The operations are effective in service delivery and efficient in the use of resources

Over the years, the teams had attempted to measure the performance of the acquisition operations to validate improvements and identify areas for improvement. However, the procedures to generate the performance reports were tedious and data extracted was not current. Nonetheless, these reports showed that the ordering process for books from the United Kingdom and the United States took 6-8 weeks and the cataloguing process, another one week. In total, the end-to-end process cycle time took 7-9 weeks (49-63 days). Only 75% of the books ordered were received and catalogued within 50 days, against the Key Performance Indicator (KPI) requirement of 80%.

It was therefore necessary to improve both processes to reduce the cycle time.

Design, Methodology or Approach

The Ordering and Cataloguing Teams utilized database query and visualization tools to measure the performance of the operations and improve the processes.

Two favourable developments aided the teams. The ILS upgrade offers the direct database query capability, while acquisition of a dashboarding tool creates new possibilities for evaluating operational performance through visualization.

Direct ILS query. Firstly, in 2013, NUS Libraries upgraded its Integrated Library System (ILS) to Innovative Interfaces Sierra. Prior to Sierra, the Library uses Innovative Millennium, which is a closed system. The only means of data extraction was via a batched query and export interface using the review file feature. With the upgrade to Sierra, users can perform direct database query into the library management system using Structured Query Language (SQL), which is commonly used in other relational databases as well. While unable to write or overwrite data in the ILS database, the data can be read and exported for further analysis or manipulation. This new functionality is called Sierra Database Navigator (DNA). With SierraDNA, dynamic queries can be constructed to retrieve data wholesale without restrictions on export count limits or the
functionality provided via the user interface. Examples of data include all order details for the past two years, and all subject librarians’ recommendations and circulation rate.

**Dashboarding tool.** Secondly, in 2011, NUS Libraries embarked on a project to build an organisational dashboard. A project team:

- Reviewed library processes to identify functions critical to user satisfaction
- Selected a set of useful KPIs to monitor
- Acquired a dashboarding tool and
- Implemented the organisational dashboard

Among the tools used for data mining, performing business analytics and creating charts and dashboards, NUS Libraries chose a product called BellaDati. BellaDati provides two especially useful features. These are:

1. **Multiple connectors to various data repositories** such as PostgreSQL and MySQL. It allows users to input a SQL construct to extract a specific set of data from their repositories into BellaDati for charting and analysis. This means that users can construct a dataset with data from multiple sources, which introduces vastly wider possibilities in analysis when compared to the individual datasets contained in separate silos.

2. **Scheduler** that allows users to specify the interval which data is refreshed. Depending on the need for data currency, size of the dataset and capability of the database server, the datasets can be refreshed as frequently as once every 15 minutes. The refresh can take the form of either incremental load or purge-and-refresh.

This combination of new ILS capability and dashboarding tool greatly enhances the capability of the teams. Dynamic queries provided up-to-the-hour data that is pulled automatically from the ILS. The teams are freed from the tedious efforts of generating the order lists manually and instead focus their efforts on data analysis. Complex analysis can be coded with SQL and repeated as frequently as necessary. With data visualization, the teams can easily identify bottlenecks, make improvements and monitor the situation.

Although monitoring the process is essentially reactive in nature, it enabled the teams to eliminate unnecessary steps and improve processes to reduce the cycle time further. One such improvement was the automatic assignment of Library of Congress (LC) call numbers for selected titles. The cataloguers identified a pattern for certain copy-catalogued titles where automatic assignment of LC call numbers is possible. The Cataloguing Team automated the construction of Library of Congress (LC) call numbers using **Microsoft Excel**. A scripting tool, **AutoHotKey**, was used to identify titles that can be assigned LC call numbers with the automated method, populate the list in Excel, generate the call numbers and insert the call numbers into the records.

The dashboard was ready in July 2016 and the monitoring started immediately. Past data was also included to enable the team to review the performance against past data. With the dashboard, we can now drill down using the orders turnaround report and retrieve the list of orders that did not meet the KPI, so that remedial or corrective actions can be taken.

The following are some of the charts that we used for monitoring purposes. Chart 1 represents the turnaround performance for the end-to-end process of receiving users’ recommendation to title catalogued. This gives an indication of how well the team is performing. The target for overall turnaround time is set to 50 days. The measurement starts from the time the user submits a book request and ends when the book is catalogued. As a performance measure, the team is to meet this target 80% of the time. From Chart 1, it is very clear that the end-to-end turnaround before July 2016 is inconsistent. Improved and sustained performance was achieved only after July 2016, when the team had a visual representation of the data for monitoring.
From this chart, we can drill down into sub-activities within the workflow. The sub-activities are depicted in Diagram 1.

Charts 2 to 4 represents the drill-down charts, and are labelled [A1], [A2] and [A3] respectively. Details of the charts can be found in Table 1.

<table>
<thead>
<tr>
<th>Chart</th>
<th>Measure</th>
<th>KPI</th>
<th>Ownership</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Request Turnaround</td>
<td>90% within 4 days</td>
<td>Ordering Team</td>
<td>Deploy additional staff to process user requests when there is a surge in recommendations</td>
</tr>
<tr>
<td></td>
<td>From the time user requests the book to when Ordering Team sends the order</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Order Turnaround</td>
<td>90% within 45 days</td>
<td>Ordering Team</td>
<td>Cancel existing order and place new order with other book vendors</td>
</tr>
<tr>
<td></td>
<td>From the time Ordering Team sends the order to the time book is received</td>
<td></td>
<td></td>
<td>Arrange for interlibrary loan</td>
</tr>
<tr>
<td>4</td>
<td>Cataloguing Turnaround</td>
<td>90% within 1 day</td>
<td>Cataloguing Team</td>
<td>Prioritizing the cataloguing of items that are near to or exceeded the overall turnaround KPI of 50 days</td>
</tr>
<tr>
<td></td>
<td>From the time the book is received to the time the book is catalogued</td>
<td></td>
<td></td>
<td>Deploying additional staff to catalogue the titles when there is a surge in receipt</td>
</tr>
</tbody>
</table>

Table 1: Dashboard charts for measurement of performance at various stages of the process
The charts enable Ordering and Cataloguing Teams to track the overall performance of the process, as well as individual orders from the point the request is received to the point the title is catalogued. The latter is akin to tracking individual orders made through popular online vendors such as Amazon. The thoroughness of the monitoring ensures that each and every long outstanding order receives attention, thus ensuring user satisfaction. When each of the components is able to meet target, we can be assured that the overall turnaround target can be met as well.

Using the dashboard, the Ordering Team generates a list of titles which are more than 28 days old and which have yet to be received. The list is downloaded and disseminated to Ordering Team members on a weekly basis. The team members will follow up with the vendors on the status of these orders. If the vendor is not able to supply the order that is urgently required
by a user, the team member will cancel the order and place a new order with another vendor who is able to supply within the
next 21 days, or arrange for interlibrary loan. In this manner, the team is actively working to maintain the target of sending
out an order and receiving the book within 45 days.

Table 2: Dashboard dynamically generates list of orders created more than 28 days (4 weeks) ago

The Receiving and Cataloguing functions were combined and managed as a through, streamlined process. This is carefully
implemented to fulfil the segregation of financial roles requirement mandated by the University procurement policy; some of
the team members handle multiple roles and there must be no conflict in roles.

The Cataloguing Team monitors a chart (Chart 5, below) in the dashboard daily to check for newly received items that had
taken 45 days or more to arrive, and had not yet been assigned a call number automatically. The team members will
prioritise the cataloguing of such titles and attempt to meet the overall KPI of 50 days. When all such titles are catalogued,
the chart has no available data and that is a good sign.

Chart 5: Items that have been received beyond 45 days from request date, but not yet exceeded 50 days

The Cataloguing Team also monitors cataloguing performance by the cataloguing types:

<table>
<thead>
<tr>
<th>Cataloguing Type</th>
<th>KPI</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgent titles</td>
<td>1 day</td>
<td>These are titles urgently required by users, regardless of cataloguing type (i.e. copy cataloguing or original cataloguing).</td>
</tr>
<tr>
<td>Copy cataloguing</td>
<td>2 days</td>
<td>These are titles not urgently required by users and not covered by the automated method of assigning LC call number using Microsoft Excel and AutoHotKey.</td>
</tr>
<tr>
<td>Original cataloguing</td>
<td>5 days</td>
<td>These are titles not urgently required by users and with no catalogue records available for copying from cooperative cataloguing platforms (e.g. OCLC).</td>
</tr>
</tbody>
</table>

Table 3: Cataloguing Types and KPIs
Chart 6 shows the performance of the different cataloguing types. The data is refreshed on hourly basis.

The generation and insertion of LC call numbers take place before the books arrive at the Library. This redesigned process removes the need for those titles to be catalogued after they arrived at the Library, which reduces cycle time. The automated generation and insertion of LC call numbers resulted in 89.4% of orders received and catalogued within 50 days. 99.1% of received titles were catalogued within 1 working day, well beyond the KPI of 90%. Productivity and output quality improved; 74 person-hours was saved every month and error rates was reduced. The processes are well controlled and the results are sustainable.

With the time saved, the teams are able to dedicate more time into further improving the ordering and cataloguing processes. For example, the Ordering Team is looking into evidence-based ordering, which checks vendors for actual stock availability for every single title that is to be purchased, rather than making the purchasing decision on traditional vendor profiling. This approach reduces the need to claim from vendors, resulting in higher productivity for staff and greater satisfaction for users.

Research or Practical Limitations

There were challenges encountered during the improvement efforts. Firstly, the formulation of SQL queries for data extraction can be complex and executions taking the minutes to complete. The operation improves after the server was upgraded. The dashboarding tool uses its own set of terminologies and imposes a substantial learning curve.

Secondly, the current performance monitoring is only applied to English, print titles and requested by users. Besides print titles, the Ordering Team also process requests for non-print titles such as music scores and films. These non-print titles are not easily obtainable and do not follow the target timeline of 50 days. Besides English titles, we also get request for Chinese titles and sourcing from Chinese suppliers follows a different target timeline. In the next enhancements, we will try to track the performance of non-print as well as non-English titles.

Thirdly, the Ordering and Cataloguing Teams had to learn new techniques. The Ordering Team had to learn the new claims techniques when the improvements were first implemented. There were apprehension and uncertainty among the team members, which had to be addressed and reassured. The initial lists of long outstanding orders appeared interminable; the team struggled to clear the initial long outstanding orders to bring the ordering process under control. The Cataloguing Team has to run the Excel and AutoHotKey scripts in a fixed sequence.
Conclusion

NUS Libraries utilised a combination of ILS features and the dashboarding tool to produce a dashboard. The dashboard was used to manage and monitor the end-to-end process of book ordering and cataloguing, such that long outstanding orders and other anomalies can be detected and corrected early. This ensures timely provision of requested items to users. The cataloguing process prioritizes urgent titles so that these titles can be catalogued within one working day, regardless of cataloguing type. AutoHotKey scripts and Microsoft Excel were used to automate the LC call number assignment for some titles, and these reduced waiting time and the number of titles for copy cataloguing. These improvements to the end-to-end process enhances the user experience, shortens the wait time and provides for a more consistent service delivery experience to the patrons.

Originality and Value of the Proposal

Data visualization aids understanding of data and offers new ways of interacting with data (Phetteplace, 2012), thereby affording greater insights (Few, 2009, as quoted in Murphy, 2015). It has useful applications in many library domains, such as book recommendation (Padgett and Hooper, 2015), collection representation (Eaton, 2016) and analysis of survey results (Murphy, 2015). This paper presents the use of visual monitoring of acquisition processes. We also demonstrated the use of Microsoft Excel and AutoHotKey in assigning LC call numbers according to in-house practises, which may be of use to other libraries with in-house cataloguing practices.

Authors’ Biography

Mr. NG Chee Yong is a Senior Librarian at the National University of Singapore Libraries. He is with the Technical Services unit, handling book acquisitions. Prior to this, he was in the Library Information Technology Services team. He was part of the project team that built the organisational dashboard. He is also an Engineering Resource Librarian and provides instructional and advisory services to Faculty of Engineering.

Mr. CHENG Eng Aun is a Senior Librarian at the National University of Singapore Libraries. He serves as the Acquisitions Lead in the Technical Services unit and manages the analysis of collection and usage statistics. He is also an Economics Resource Librarian and provides instructional and advisory services to Faculty of Arts and Social Sciences.

References


Using data to strategically deploy staffing resources

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michael.williams@bodleian.ox.ac.uk

Legal Deposit storage solution
The Bodleian Library is the main research library of the University of Oxford and takes its name from Sir Thomas Bodley who re-founded the library within the University in 1602. It is part of the wider University library service, the Bodleian Libraries, which includes major research libraries, libraries attached to faculties, departments and other institutions of the University.

In 1610 Sir Thomas Bodley made an agreement with the Stationers’ Company of London under which a copy of every book published in England and registered at Stationers’ Hall would be deposited in the new library. This was the precursor to the Legal Deposit Libraries Acts and the Bodleian Libraries remains one of six Legal Deposit libraries that is entitled to receive a copy of every book published in the UK.

This results in a large intake of printed material which we have to store in perpetuity so our solution is the Book Storage Facility (or BSF) at Swindon, about 30 miles (about 50km) from Oxford. Opening in October 2010, it cost £26M to construct and has 153 miles (246 km) of shelving capable of storing approximately 13 million books. It is designed to store low-use collections including modern collections, rare books, archives, manuscripts, maps and heritage collections including portraits. Up to 7,000 new items are acquired each week.

![Shelving in the Book Storage Facility](image-url)
The environmentally controlled library warehouse currently houses 10 million collection items and its team of 15 staff provide a delivery service to students and researchers in 21 libraries across Oxford. Including the management team and project staff there are 22 staff who work at the site.

**Increasing demand for collections**

At the design phase in 2009, there was an expectation that an increased demand for digital would reduce demand for print resources. Statistics were showing that the demand for the service was much higher than forecast and, as a result, the operationally intensive environment had bottlenecks and backlogs which were affecting the service level agreements. Around 19,500 items are requested each month and it was clear that the staffing levels were inadequate to meet demand so we needed to capture data to enable evidence-based decision making to restructure and supplement staffing. In reality, digital has complemented print, not replaced it, and access to digital has opened up our collections more widely resulting in a growth in demand in both analogue and digital materials.

![Figure 2. Forecast and actual demand for BSF collections 2012-2015](image)

Figure 2 shows the forecast and actual demand for items stored at the BSF between 2012 and 2015. Each request is known as a ‘retrieval’. Rather than decreasing year on year, demand increased significantly and by the end of 2015, the number of items retrieved exceeded the forecast by over 100,000.

To address this growing difference, we were able to adapt the existing staffing to some extent by restructuring and moving vacancies to the areas with the most need. The operations had also bedded in and were able to deliver some process improvements – there is a manager at the warehouse who has this as part of her role. Nonetheless, backlogs and bottlenecks were being created and this had an impact on service levels and our ability to provide access to our collections.

**Staffing capacity model**

The solution to this growing problem was to look at all the operational activities underlying the book service and break it down into discrete tasks. Each task was described and measured using a combination of observation and existing
performance data and articulated as time taken to complete each task. For example, performance data showed that we are able to retrieve slightly more than one book per minute. The list is exhaustive, right down to allocating time to staff development and training and resulted in a detailed measurement for each task showing how much time a warehouse assistant spends on each activity (Figure 3).

<table>
<thead>
<tr>
<th>Task</th>
<th>Work rate</th>
<th>Minutes</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retrieval</td>
<td>1.1 books per minute</td>
<td>0.909</td>
<td>0.015</td>
</tr>
<tr>
<td>Retrieval verification</td>
<td>3 books per minute</td>
<td>0.333</td>
<td>0.006</td>
</tr>
<tr>
<td>Tote weighing</td>
<td>850 items per day weighed over 3.5 hours</td>
<td>0.247</td>
<td>0.004</td>
</tr>
<tr>
<td>Delivery</td>
<td>9 hours per day</td>
<td>540.000</td>
<td>9.000</td>
</tr>
<tr>
<td>Refile build</td>
<td>0.65 books per minute</td>
<td>1.538</td>
<td>0.026</td>
</tr>
<tr>
<td>Refile</td>
<td>1.34 books per minute</td>
<td>0.746</td>
<td>0.012</td>
</tr>
<tr>
<td>Data download</td>
<td>60 items in 5 minutes</td>
<td>0.083</td>
<td>0.001</td>
</tr>
<tr>
<td>Scan &amp; Deliver</td>
<td>10 minutes per scan</td>
<td>10.000</td>
<td>0.167</td>
</tr>
<tr>
<td>Maps</td>
<td>1.3 minutes per map (retrieval and refile)</td>
<td>0.769</td>
<td>0.013</td>
</tr>
<tr>
<td>Tray making</td>
<td>1.5 trays per minute</td>
<td>0.667</td>
<td>0.011</td>
</tr>
<tr>
<td>Ingest</td>
<td>4 books per minute</td>
<td>0.250</td>
<td>0.004</td>
</tr>
<tr>
<td>TTS</td>
<td>1 tray per minute containing 16 items</td>
<td>0.063</td>
<td>0.001</td>
</tr>
<tr>
<td>Auditing</td>
<td>15 minutes per tray (containing 16 items)</td>
<td>0.938</td>
<td>0.016</td>
</tr>
<tr>
<td>Cleaning</td>
<td>60 minutes per day</td>
<td>60.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Battery charging</td>
<td>20 minutes per day</td>
<td>20.000</td>
<td>0.333</td>
</tr>
<tr>
<td>Staff development</td>
<td>1 hour per day (equivalent to 3 days pppy)</td>
<td>60.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Travel time</td>
<td>15 minutes per day</td>
<td>15.000</td>
<td>0.250</td>
</tr>
</tbody>
</table>

*Figure 3. Work rates for each operational task*

We did explore other methods for measuring capacity, e.g. tracking the lifecycle of requests from fetching, delivery to the libraries and then return to the warehouse but with so many variables and the difficulty in obtaining data for items once they had left the warehouse, this idea was not pursued.

Using the data from previous years, for example the number of retrievals or the number of days in year that a task is undertaken we can forecast the time required to provide the BSF’s services for a whole year. For 2016 the total time required to deliver our services was over 21,000 hours (Figure 4).
For the capacity analysis to work we needed to understand how much work an employee could undertake. We calculated the time a member of staff was actually working, taking holidays and sickness into account. Across the 13 staff we had working at that time, we had a total capacity of over 18,000 hours (Figure 5).

**Figure 4. Forecast demand on staff time for 2016**

For the capacity analysis to work we needed to understand how much work an employee could undertake. We calculated the time a member of staff was actually working, taking holidays and sickness into account. Across the 13 staff we had working at that time, we had a total capacity of over 18,000 hours (Figure 5).

**Available staff time**

<table>
<thead>
<tr>
<th>Working time</th>
<th>Sickness time</th>
<th>Holiday time</th>
<th>Available time</th>
<th># staff FTE</th>
<th>Total available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours</td>
<td>1,768</td>
<td>68</td>
<td>265</td>
<td>1,435</td>
<td>13</td>
</tr>
</tbody>
</table>

**Figure 5. Available staff time at existing levels of staffing**

Using the forecast demand on staff time to provide the BSF’s operational services and the number of staff hours available we were able to calculate the staffing capacity for the following year. A simple subtraction showed that we were short of over 2,600 hours, which is the equivalent of almost two people. This was the evidence that demonstrated we had inadequate staffing levels.

We are fortunate that the book service is highly regarded by both readers and the Libraries’ Executive as access to the diverse collections stored in the warehouse is key to both the University’s teaching and research activities. We were able to put a case together to seek funding for two additional staff members. Using the evidence from our staffing capacity analysis, we were able to convincingly argue for additional staffing at the budget setting round. This was deployed as one full-time staff member and two part-timers as the evidence demonstrated that activity intensity increased in the evenings and, therefore, two additional, part-time people were required to supplement existing staffing at that time. We were successful in securing funding for a fixed-term of two years.
With the equivalent of 15 full-time equivalent staff, the available staff time increased to 21,522 hours. This is a level that meets the forecast demand with a surplus of 176 hours across a twelve month period (Figure 6).

<table>
<thead>
<tr>
<th>Capacity forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Available staff time</strong></td>
</tr>
<tr>
<td><strong>Demand on BSF time</strong></td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
</tr>
<tr>
<td><strong>Available time</strong></td>
</tr>
<tr>
<td><strong>Staff capacity</strong></td>
</tr>
</tbody>
</table>

*Figure 6. Capacity forecast showing the new levels of staffing*

The additional staffing enabled us to maintain our service levels in an operationally intensive environment but left flexibility to adapt should the demand for the service change in the future.

**Benefits**

With the staffing in place, backlogs and bottlenecks were removed and service levels agreements were met. We also observed some subsequent, unexpected benefits. Staff were able to enjoy greater variety in their work by moving flexibility between all tasks and the data provide convincing evidence of the team’s value which has improved motivation. With empirical data from the modelling, we have been able to provide convincing statistics that drives performance management ensuring individuals are pulling their weight.

**Conclusions**

The research was motivated by operational need in an environment where meeting service level agreements is a key performance indicator. The methods can be applied to many library activities and is especially applicable to repetitive or high intensity tasks. It is equally valuable in library operations where there is a perception that staffing levels are inadequate but it is not clear how additional staffing should be deployed.
Using Lean Six Sigma to focus the Process Improvement agenda for the University of Sydney Library

Diane Green

University of Sydney Library

Abstract

This paper describes how Lean Six Sigma was used as a tool to introduce a process improvement culture to the University of Sydney Library, with the added benefit of providing a shared purpose for staff during a period of significant change.

Background and context

The University of Sydney is a large research and teaching university with over 60,000 students, 7,000 staff (academic and professional), and annual revenues of ~A$2.3 billion. Established in 1850 it is the oldest university in Australia, and is ranked in the top 100 universities globally.

The Library provides services from 12 sites and employs 216 full time equivalent staff.

In 2015 the Library commenced implementing an organisational change plan, and through that a journey in process improvement. The vision was to transform the Library from a traditional structure based on physical locations and aligned to faculties, to one which was:

- Client centred – the client experience being the key focus for all processes and policies
- Consistent – delivering properly planned and co-ordinated services, to agreed service standards
- Future-focused – undertaking forward planning with cohesion, awareness and expertise, thereby ensuring delivery of innovative, evolving and relevant services to clients
- Accountable – to the University and to Library clients for the efficient and effective delivery of services
- Integrated – having internal alignment and cohesion between the Library’s 4 divisions, to ensure each agenda benefits the whole Library and the University community
- Efficient and flexible – delivering required services in an efficient and sustainable manner – collaborating to share expertise, and to avoid duplication and waste
- Evidence-based – having the data to make informed decisions, and then measuring expected results against actual results, to corroborate outcomes and gain experiential learning
- Focused – through the implementation of a rigorous planning framework, and management to priorities that balance strategic imperatives and available resources.

The three key elements were enhanced internal capacity, enhanced staff capability, and sustainability. Significant work was undertaken to plan the new structure, to write new position descriptions, and to develop the strategy. Three programs were used as change agents: Lean Six Sigma, Insights Discovery and Crucial Conversations; and we continue to use these for sustainability of the change.
Key principles in the process improvement agenda
To support the change plan, it was acknowledged that a formal process improvement program was needed. This was with a view to providing a “a systematic approach to closing of process or system performance gaps through streamlining, cycle time reduction, and identification and elimination of causes of below specification quality, process variation, and non-value-adding activities” (BusinessDictionary.com, 2017).

A formal Library Process Improvement Strategy and Blueprint was developed outlining the approach to be taken to process improvement. Implementation of Lean Six Sigma was a central pillar of this strategy.

Lean Six Sigma is the combination of two separate process improvement methodologies, each having the same end objective of continuous business improvement. Both methodologies are highly structured and start with identifying the root cause of a problem, then finding an optimal solution to collaboratively resolve problems, prevent recurrence, reduce waste, and improve client satisfaction by creating greater value (GoLeanSixSigma.com, 2017).

Combining the two methodologies allows for varying emphasis in the deployment of each during an implementation, depending on the particular aspect of the problems to be solved.

Table 1: Comparison of Lean and Six Sigma Methodologies

<table>
<thead>
<tr>
<th>Comparison of methodologies</th>
<th>Lean</th>
<th>Six Sigma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>The breadth of the process – improving the end-to-end flow and reducing waste</td>
<td>Achieving an in-depth understanding of the process to reduce variability and defects</td>
</tr>
<tr>
<td>Target</td>
<td>Eliminate waste, Maximise value add, Minimise non-value add</td>
<td>Improving capability, focusing on steps which add value, Reducing defects</td>
</tr>
<tr>
<td>Approach</td>
<td>Direct observation and value stream analysis</td>
<td>Data driven</td>
</tr>
<tr>
<td>Level of user engagement</td>
<td>Work closely with people at the coal face, who help identify the problem and the solution</td>
<td>Lower level of user input because fact based, therefore can be perceived as “clinical”</td>
</tr>
<tr>
<td>Factors which influence choice of methodology</td>
<td>Generally smaller scale, Problem is often physical – low complexity</td>
<td>Generally larger scale, Problem is complex requiring data collection and analysis</td>
</tr>
</tbody>
</table>

Application of Lean Six Sigma at University of Sydney Library
Lean Six Sigma was introduced to the Library with the following objectives in mind:

- To implement a practical and sustainable approach to business process improvement
- To develop an engaged, trained and empowered staff to apply proven business process improvement methods
- To identify ways to provide more agile and flexible responses to changes in the information resources environment
- To develop a plan to align resources to more efficiently achieve core business objectives
- To deliver efficiency gains in key library processes, reducing processing costs and times.
The success of the program can be measured by whether a sustainable process improvement methodology has been implemented, and whether there has been a discernible change in staff attitude to look for improving the way services are being delivered to efficiently and effectively meet customer needs.

**The Lean Six Sigma training program**

From the outset the Library contracted KPMG Consulting to provide Lean Six Sigma training for 93 staff, plus support for 3 pilot projects and 12 Green Belt projects.

Participation was voluntary, and the number of participants, (approximately 37% of Library staff) is indicative of the broad interest in the program. The participants came from across the breadth of the Library, from Desk staff to Liaison Librarians, to Acquisitions, to Repository, to Technology, to support services, to Directors. All divisions and employment levels were represented.

The training occurred in two stages:

- **Firstly Yellow Belt** – 66 staff participated in a 2 day course covering the fundamentals, followed by an exam. The course was designed to provide a basic working knowledge of both Lean and Six Sigma methodologies. All participants successfully attained their Certificate of Lean Competency.

- **Then Green Belt** – 27 staff participated in an intense 8 month program providing theory and practice in both Lean and Six Sigma methodologies.

Through the Yellow Belt training and with peer support, the trainees developed the skills and confidence to participate in 1-of-3 pilot projects to test the methodology locally. The theory learned was therefore reinforced through experiential (hands-on) learning. These staff subsequently supported the 27 staff who undertook the Green Belt program. According to Kolb, experiential learning is “the process whereby knowledge is created through the transformation of experience” (1984, p.38).

In this theory, learning takes place in four stages incorporating: observation and reflection, formation of abstract concepts, testing in new situations, and concrete experience.

Throughout the program implementation, the lead team were mindful of the importance of quickly getting staff involved in projects to capitalise on the momentum from training. While gaining business outcomes was the primary objective of the program, and not the training itself, they knew that the longer the lag between training and hands on application, the greater the risk that the training could be compromised.

The immediacy, relevance and success of the three pilot projects were therefore key to embedding the Lean Six Sigma methodology within the University of Sydney Library. The projects were:

1. **Returns to Shelves**

   This process improvement led to a significant reduction in the time taken between the return of print items by patrons at designated collection points, to the items being placed back on the shelves. This resulted in improved service to customers who were able to locate and loan items sooner.

   Average time from return to shelf was reduced from just under 49 hours to less than four hours on a sustained basis.

2. **Inter-Library Loans**

   This process improvement resulted in greater consistency of search methods across a highly distributed network of libraries, improved knowledge of databases through provision of search hints and tips, decreased rework, improved productivity, and enhanced service to customers.

3. **Reading Lists**

   This process improvement resulted in a reduced variation in the Reading List requests submitted by academic staff, and ensured they were received with sufficient time before semester start dates to balance the workload for
the teams processing them. This led both to improved quality from a student perspective, and reduced stress for academic and Library staff.

Through the shared training experience, a common understanding was developed, so that subsequent proposed process change did not feel confusing, contradictory or disjointed to staff. The cascaded knowledge and enthusiasm from trained staff to their colleagues added further cohesion to the process improvement roll out.

Once the success of the Lean Six Sigma approach was proven through the three pilot projects, the next phase was the roll out Green Belt training to 27 staff. The cohort of 27 was again selected from across all divisions and levels of staff. They were trained concurrently providing the benefit of peer support, but had the impost of an additional training load along with day-to-day work. The intensive program incorporated an initial 2 day course, then 5 months later a 3 day course; 2 exams and completion of a Lean Six Sigma process improvement project (which was formally presented and assessed). The cohort of 27 worked in teams to deliver a total of 12 projects. The program was rigorous, and of the 27 participants, 19 received accreditation, 6 received certification and 2 received participation awards.

The 27 trainees formed a close-knit group and supported each other in their journey. During the 8 months of the program, a 90 minute weekly check-in meeting was scheduled which allowed participants to share their successes, their challenges and their insights. Collaboration was encouraged with participants developing confidence to show vulnerability and being open to learn. A room, “The Hub”, was set up for participants to get together and collaborate. Tutorials were run by team members for team members on the mathematical aspects of the methodology, and regular dialogue between peers allowed ideas to be generated and possible solutions to be teased out by digging into the 5 ‘whys’. The varying strengths of team members were embraced – some with strong analytical skills, some with strong communication skills and some with strong numeric skills – it is indeed true that the sum of the parts is much greater than the individual pieces. At the completion of the program, the participants celebrated as a team and continue to work as a team.

The 12 Green Belt process improvement projects were:

1. **Client Engagement & Referrals**
   Leading to a standardised process to hand over patron requests from Site to Academic Liaison Librarians, with a monitoring system to track and measure the end-to-end process, thereby providing both enhanced client service and accountability

2. **Customer Complaints & Feedback**
   Leading to the development of a standardised, easy-to-use process to track Library feedback, to support the timely resolution of issues, and a more consistent client experience Library wide

3. **Document Delivery**
   Leading to establishment of standardised processes for both incoming and outgoing delivery of library items between library sites, thereby reducing delivery time to the customer from 6 days, to a consistent maximum of 4 days

4. **Facilities Management**
   Leading to improved processes for reporting and monitoring facilities issues, reduced time to fix faults and better on-the-ground presentation and functioning of the Library spaces - resulting in an improved customer experience

5. **Library Teaching Evaluation**
   Leading to a standardised process for the management of research skills assistance requests and improved allocation of Academic Liaison Librarian support - customers received more timely and appropriate support

6. **Fines Enquiries**
Leading to reduced average time to resolve fine appeals, an outcome that empowered staff and was more in line with customer expectations

7. Missing Books
   Leading to a standard and consistent procedure across all locations in managing missing item requests, thereby improving client experience

8. New Repository Services Model
   Leading to streamlined research repository processes and better integration through an overarching enterprise level system, allowing requests to be attended to more efficiently

9. Orchestral Scores Reading Lists
   Leading to process changes so that musical scores could be sourced in a more timely fashion, then tracked for early return following performances

10. Rare Book Requests
    Leading to implementation of a more consistent and timely service, with reduced client waiting times

11. Serials Shelf Ready Workflow
    Leading to an 80% reduction in accessioning time, making resources available for customers sooner

12. Sydney University Press Production Workflow
    Leading to reduced delay in the release of eBooks after print books, thereby better meeting client expectations

These 12 projects were building blocks that allowed the University of Sydney Library to embed the requisite skills to allow the Lean Six Sigma process improvement approach to be replicated. They represent a series of small transformations, which combined have led to significant improvement.

Since that time further projects have been (or are being) undertaken in:

- **Borrower Enquiry Process**
  A comprehensive review to identify changes to improve the end-to-end workflow and reduce waste

- **Fine Appeals**
  A first time fine waiver processes has been researched, developed and delivered

- **Customer Complaints and Feedback**
  Research has been undertaken to determine how to best capture relevant and accurate client feedback data to inform decision making
  A Library-wide borrower enquiry ticketing system has been implemented, and it is intended that a similar ticketing system will be implemented for client feedback.

- **Borrow Enquiry Request Management**
  A pilot was run for managing borrower enquiries via Springshare. Based on its success, Springshare has now been implemented as a business-as-usual borrower enquiry management tool.

- **SciTech Library Return to Shelves**
  A Lean Return to Shelves methodology has been implemented in the SciTech Library
The Library is now in the sustainability phase of the Lean Six Sigma program. The Central Services Division are leading the initiative to ensure the library maintains and further develops the knowledge and skills in using Lean Six Sigma to deliver continuous service improvement throughout the library.

We have established a Lean Community of Practice Group which is championed from within the Central Services division. A follow-up Lean Six Sigma training program is planned to commence in August, in order to provide the opportunity to new staff members and those who were not involved in either of the first two training programs to formally learn about Lean Six Sigma thinking and practice. Thereafter a rolling cycle of training will occur so that those who are new to the organisation will be able to gain knowledge and become a part of the shared language and understanding.

The source of future projects will be from within the teams themselves. Green Belt staff members are invited to lead initiatives, and Yellow Belt staff members are invited to participate. Staff who are not yet formally trained are welcomed and mentored in the methodology.

**Lessons Learned**

The implementation reinforced the importance of collaborating and communicating – keeping channels open and really listening for concerns so that they can be resolved in a timely manner. In regard to the Green Belt component in particular, embarking on a weighty training program concurrent with day-to-day work was a significant undertaking for participants. In retrospect, smaller cohorts would have been more manageable and less stressful for all involved, and a smaller scale approach will be taken going forward. In addition, the difficulty of developing the Green Belt skills was not understood until training was well in flow, and as a result some participants struggled with the learning. In retrospect, selection of participants for Green Belt training could have been more rigorous.

In addition, at the same time as the Lean Six Sigma training was occurring, the Library also rolled out two other significant programs - Insights Group Insights Discovery (Insights, n.d) (aimed at identifying individuals preferred approach to work) and VitalSmarts Crucial Conversations (VitalSmarts, n.d.) (aimed at identifying where communications are not working and learning skills to get them back on track). Both of these subsequent programs also involved internal staff champions and facilitators being trained – again a significant commitment from staff along with their day-to-day work.

**Conclusion – value to the University Library**

Lean Six Sigma provided a common language and organisational framework which facilitated objective review and improvement of a number of legacy processes through engagement by the staff owners as opposed to direction by Library Management. The methodology provides staff with a consistent base from which to explore what clients want, and the changes needed to better meet those wants.

The common approach and language of Lean Six Sigma is now a core enabler to sustainable process improvement for the library. The training has created real capability through skill development of staff; and is not just the implementation of a collection of tools and techniques. The methodology provides a consistent and understood approach which is repeatable. Many staff have embraced the methodology, and this advocacy and shared understanding ensures operational improvements continue to be welcomed within the Library.

Lean Six Sigma proved a successful change agent.
References


What is your contribution to the funder’s strategy?

Relationship and impact of research libraries

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TH Köln (former University of Applied Sciences Cologne). Faculty of Information Science and Communication Studies

Abstract:
The paper examines the role and position of libraries in their funding organisations from multiple perspectives. While customer orientation has become increasingly important in libraries for many years, the contribution to the overall corporate strategy has played a rather subordinate role. Libraries started to define their own library strategy very much orientated on user needs and by changing library services and products. What attracted less attention was the contribution of the library to achieve the overall corporate objectives of the funding organisations, i.e. the contribution to the company strategy. But this is a critical point, because a visible and demonstrable contribution of the library characterizes the perception by the top management. Does the library help to achieve the long-term direction and goals of the institution? How can results be demonstrated? The paper addresses the different directions of communication that modern library management has to apply within the organisation. It is not only that embedded or liaison librarians are needed to firmly anchor the library in the centre of the institution. It is an embedded library as a whole that has to prove relevance and importance to the future of the institution. Without strong links to the top management of the funding institutions even very well performing libraries will stay at the periphery instead of the centre of their institution.

Keywords:
Library strategy, Funding organisation, Library management, Results, Performance measurement

Which role plays a library play when it comes to a critical reflection of the overarching goals of an institution? Are they center or periphery? From which criteria can we derive this? Looking at long-term plans and actions the strategy of an institution comes in very quickly. The word “strategy” originates from military context and meant the art of leadership of armed forces during the war (Raps, 2009). Today the word strategy is used in very different settings and often relating to economics or finance, although it emerged only in the sixties as a field of study and practice in business administration. (Kiechel, 2010). In these days strategy was defined by “the determination of the basic long-term goals of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals.” He coined the famous theses “Structure follows strategy” which means that structure is the design of the organization through which strategy is administered. (Chandler, 1962). In the eighties Porter introduced the aspects of competition and of learning organization in his definition of strategy and another twenty years later Henry Mintzberg differentiated the term into five different definitions: plan, pattern, position, ploy, perspective. In his view strategy and structure complement each other and need to be refined and adapted over time. (Mintzberg, 1998) For library that would mean, that they would be mentioned in the business strategy and that the organizational structure reflect the position. Furthermore in the last years the aspects of competition and sustainability seem to become more important.

So it’s hard to decide for one single definition, especially in the light of fact that libraries are not private enterprises but public sector organizations or authorities, whose (financial) framework is very different from those of corporations. On the other hand all those definitions have some common characteristics that are valid in general for different kinds of organizations.
Strategies are:

- forward-looking,
- long-term,
- include plans and actions,
- aim to ensure success,
- act at different levels.

To put it in a nutshell, strategy closes the gap between the current state of an organization and the state that the organization wants to reach in the future; it is the planned path to future success. As defined concisely by Freek Vermeulen (2010) a strategy is ‘an action plan and a rationale’.

But what is success in a public organization? Unlike in corporations, it is not sales and revenue-generation that is of most interest in the public sector but the stakeholder value, and this means meeting the expectations of the stakeholders. Emphasizing these aspects two newer definitions of strategy can be applied very well to public sector organization respective libraries:

“Strategy describes the long-term orientation of the tasks of an organization, which obtains competitive advantages in a changing environment by using resources and competences with the aim of meeting the expectations of the stakeholders.” (Johnson et.al., 2011)

„Highly individual system performance, which depends on the overall framework“ (Nagel and Wimmer, 2009)

Especially the aspects of competition in a changing world, the stakeholder expectations and the individual character of a strategy will be picked up again later but first the general usage of strategy in libraries should be a first topic.

Who is working on / using a strategy? - State of the art

Among European libraries the current state of the art concerning library strategy seems to be rather different. Whereas the association of Research Libraries in the UK has published a common strategy document 2014-2017, an equivalent document for the German-speaking countries is missed. It turns out that a simple Google search for the English term “library strategy” delivers more than twenty different strategies papers of British libraries and some Swedish examples looking at the first three pages of the search results. Carrying out the same Google search with the German term “Bibliotheksstrategie” the result is very different: There is hardly any strategy document of a library with the exception of a brilliant description of how to develop a strategy in the public library of Biel, Switzerland (Moser, 2014) and some smaller examples from Switzerland. All other results show discussions of the need for national library strategies or offering further education courses for establishing your own strategy. But the situation is not as bad as it appears to be: An online survey conducted prior to the conference “chances 2014 – success factor library strategy” asked the participants whether their library has a library strategy or a library concept in writing. The following diagram shows the distribution of answers (Ekz 2014):

![Fig. 1: Does your library has a library strategy or a concept in writing?](image-url)
Bearing in mind, that a conference about strategy will be visited primarily by those, who have greater interest in that topic and that the survey is not representative those figures show a somewhat too pretty picture. Compared to Anglo-American libraries large-scale of libraries in German-speaking countries are concerning strategy still in their infancy and obviously far fewer published.

**Stakeholder bias**

Coming back to the expectation of the stakeholders of the library. According to Umlauf (Umlauf, 2013) typical library stakeholders are:

- Funding bodies (persons, committees)
- Employee
- Executives
- Personnel Representation
- user
- Friends
- Suppliers
- …. 

Looking at the relationships the different stakeholders have with the library, a clear hierarchy can be identified: First of all the funding bodies is the most important stakeholder as it provides all major resources. For that reason, the strategy of the funding body, which is generally created for the whole organization by the upper management, plays an important role for all subordinated areas and divisions. The corporate strategy aims at reaching specific goals which in turn provide the basis for reporting or benchmarking with similar organisations. It can be broken down into objectives and processes to ensure that the strategy is relevant all the way down the organizational hierarchy – a hierarchy where the library finds its place somewhere in the organizational structure. The three stakeholders “employees, executives and potentially personnel representation” belong to the inner circle of the library and can develop a special library strategy. Users can be differentiated into different target groups, e.g. primary user group, administration, Library products and services try to meet the expectations of the users as much as possible. Friends and Suppliers are not part of the Organisation and support in different ways from outside.

The relationship between the stakeholders and their contributions to the different strategies is shown by the following graph:

![Figure 2: Relationship between the stakeholders](image)
The library finds itself in a sort of sandwich position between the funding body and the users. Having read several library strategy documents, it was noticeable that a lot more focus was put directly on the users’ side instead of the corporate side.

So a research group more than 50 library strategy papers (57 papers) from different European countries, half of them academic (including research) libraries – half of them public libraries. By means of counting word frequencies and content analysis, the small study group examined that there is a stakeholder bias: In contrast to the importance of the stakeholder the specification in the libraries’ strategies is distinctly smaller than the topic of the users. 18 strategy documents didn’t mention anything about their corporate bodies. 21 papers describe the position or the role of their library in the corporate context remaining rather generally. Only 18 library strategies engaged closer with their contribution to the strategic goals of their funding institution. Before any misunderstandings arise: users are definitely one of the most important if not the most important aspect of a library strategy but the fact that nearly a third of the analysed strategy documents didn’t mention their funding body at all is rather astonishing.

**Thinking and planning in all directions**

Creating a customer-driven library is not the only way for a strategic alignment. Matthews states that one of the primary ways of differentiating a library is either being better or being different: (Matthews, 2005):

<table>
<thead>
<tr>
<th>Being better (preservation / optimization)</th>
<th>Being different (reorientation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on your existing position</td>
<td>Identify new or unexplored customer segments to focus on (a new who)</td>
</tr>
<tr>
<td>Try to improve your position</td>
<td>Identify new customer needs that no competitor is satisfying (a new what)</td>
</tr>
<tr>
<td>To make improvements, organizations will focus on quality programs, process reengineering, employee empowerment …</td>
<td>Identify new ways of delivering and distributing your products and services (a new how)</td>
</tr>
</tbody>
</table>

Most of the analyzed strategies document focus much more on being different than on being better and since “being different” is more user orientated whereas “being better” is more top management orientated. The link to the top management level of the funding body so needs to be strengthened.

**Making links to corporate level strategy**

Depending on the kind of library, the strategic planning can be found in different places:

- Public libraries: local authority planning documents
- Academic libraries: university development plan
- Research libraries: research development policy of one or more research institutions

As for German Research Libraries: Sind 2008 there is a Joint Science Conference dealing with all questions of research funding, science and research policy strategies and the science system. For each of the four national
research societies (Max-Planck Society, Helmholtz Society, Fraunhofer Society, Leibniz Society) the GWK formulated a set a performance indicators that are used to compare the different societies in a monitoring report published every year. Interestingly there are a several aspects affecting the libraries and their services and products, but the libraries (approximately 200) are not mentioned directly in that context. The same applies obviously the other way round if some libraries happen to forget to mention their funders in the strategy document.

An exemplary matrix can be developed, that is adaptable by different library types to show, to which extent the research library is able to support and influence the level of different performance indicators and thereby to contribute to the overall goal of the organization.

<table>
<thead>
<tr>
<th>Area</th>
<th>Categories of comparison / indicators</th>
<th>Library involvement</th>
<th>Level 1-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic development of the science system</td>
<td>German science in international competition</td>
<td>partly</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>New strategic science fields</td>
<td>partly</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Competition for resources</td>
<td>partly</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Research infrastructure</td>
<td>partly</td>
<td>4</td>
</tr>
<tr>
<td>Networking in the science system</td>
<td>Individual based cooperation</td>
<td>partly</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Science based cooperation</td>
<td>partly</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Regional cooperation</td>
<td>partly</td>
<td>2</td>
</tr>
<tr>
<td>International cooperation</td>
<td>Internationalization strategy</td>
<td>fully</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>European cooperation</td>
<td>fully</td>
<td></td>
</tr>
<tr>
<td>Science and Economy</td>
<td>Economic value creation</td>
<td>partly</td>
<td>3</td>
</tr>
<tr>
<td>The best brains</td>
<td>Awards and prizes</td>
<td>partly</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Women in science</td>
<td>fully</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.....</td>
<td>.....</td>
<td>.....</td>
</tr>
</tbody>
</table>

The table is just a fictitious example but the strategic areas and the categories of comparison among the different German research societies are real. (Pakt für Forschung und Innovation, 2015). So far the value of research libraries has usually been seen as supporting the research process for the users in the best possible way. As more competition arises even between different research institutions or societies, the role of the library respecting the contribution to the stakeholder’s strategy opens up another perspective.

The first important step is identifying and gathering corporate strategic objectives, which can be classified in comparison with the level of possible library involvement. The metrics to compare the libraries or to measure the degree of attainment of targets are to be found at the end of the strategic planning process:

- **Mission** – why we exist
- **Values** – guiding principles
- **Vision** – world picture of the future
- **Strategic focus** – differentiating the library
- **Critical success factors** – identifying what is important
Moser (2014) is one of the sources explicitly mentioning the role of the funding bodies in the process of library strategy development. He argues that the superior instance (e.g. office, supporting agency) must be convinced of establishing a strategy. It should give the library a written mandate to develop a new strategy so that the library is politically and financially secure. Although it is not specifically mentioned this strong involvement right from the beginning will develop a strong link. That is the opposite of libraries being just there for historical reasons, where no one knows exactly what they are doing in the age of digitalization.

Here we come full circle: There is always an awareness of costs and benefits in the top management level. But if the library has a permanently defined task to fulfil on behalf of the funding body, there will always be a communication about the degree to which targets have be met and about new plans for the library. The best case scenario is an ongoing dialogue about library development instead of somewhat anxious justification and the fear to be overlooked.

**Summary: Challenges for Library Management**

The connection between the library and its supporting institution needs to be the central aspect of formulating an individual strategy. It is essential to demonstrate the either direct or indirect contributions library services can make for the long-term objectives and interests of the base institution (university, community) Demonstrating these relationships is essential because the library’s role as a service provider and infrastructure facility chiefly consists in decisively advancing either the performance of scientists and students or the education, culture and recreational activities of citizens, and because its performance in this respect cannot be directly “experienced” by the funding body. The strategy has to be communicated, thus guaranteeing sufficient visibility of the library's achievements with the top management as well as with the customers. Consequently it is also necessary to develop new marketing activities – for specific target groups, for new (and “invisible”) electronic products, for an attractive workplace, and for a larger visibility of the library's performance and service capabilities. If the library succeeds in not only showing their performance to the users but also to the corporate level, the library will play a different role in and for the organization. Being able to show the contribution means more than having “embedded” or “liaison” librarians. It means to have and to be an “embedded” library which place is in the center instead of periphery.

**References**


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